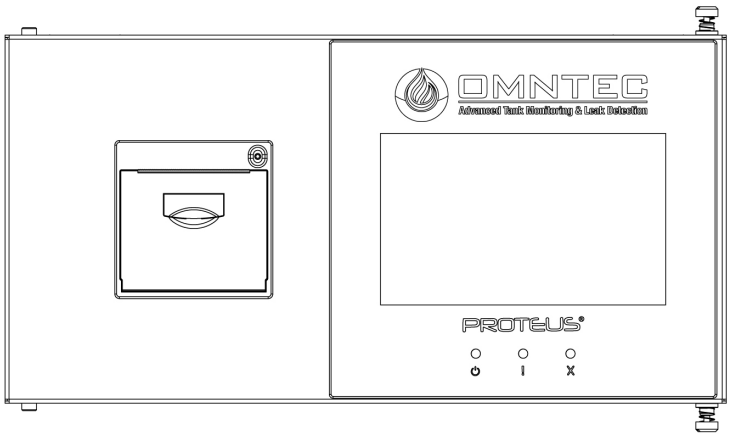
OMNTEC
Advanced Tank Monitoring & Leak Detection

1. Open the camera app
2. Focus the camera on the QR code by gently tapping the code
3. Follow the instructions on the screen to view PDF file

OEL8000III-K | OEL8000III-X

PROGRAMMING MANUAL



PROTEUS® Series
TANK GAUGING SYSTEM
GenIV

Revision 1.4

Document No. DOC00008

OMNTEC® Mfg., Inc. has been certified by DQS Inc. to ISO 9001:2015

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TABLE OF CONTENTS

1. Navigating To Setup

Home Screen:
The SETUP MENU is located via UTILITIES.
(See Figure 1.1)

Note: Figure 1.1 is the factory-default Home Screen.

To change the Home Screen:
Go to Section 5 of this document; page 2 of MISCELLANEOUS SETTINGS.
(See Figure 5.2)

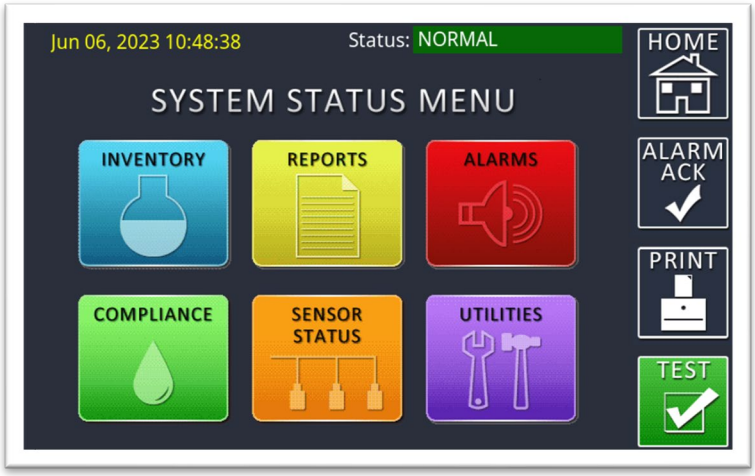


Figure 1.1

Utilities Screen:
To enter SETUP, press the SETUP MENU icon.
(See Figure 1.2)

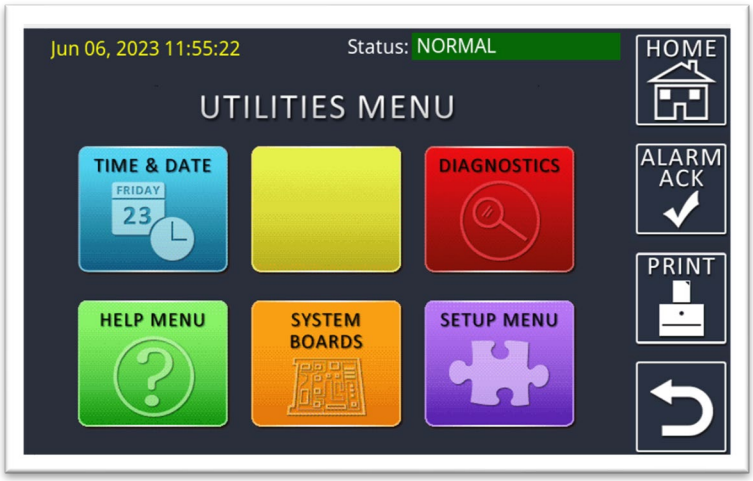


Figure 1.2

Enter Password:
Enter the current Setup Menu password. The manufacturer's default password is **000000** (six zeros).
(See Figure 1.3)

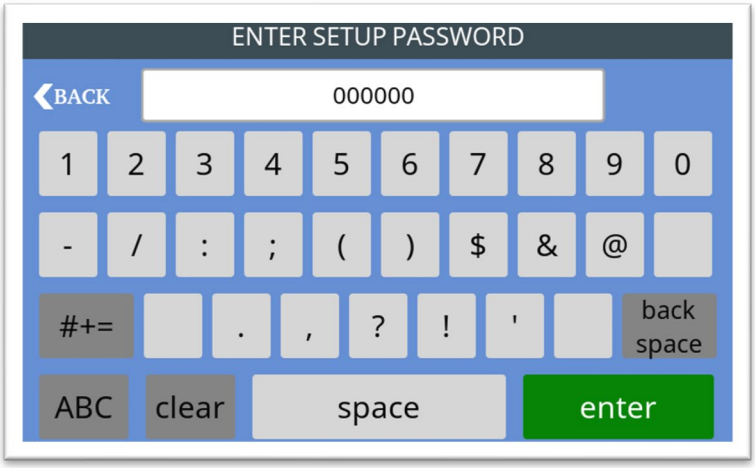


Figure 1.3

`

Setup Menu (Page 1):
Used to navigate corresponding system setup options. Press the down arrow, on the right, to access SETUP MENU (PAGE 2).
(See Figure 1.4)

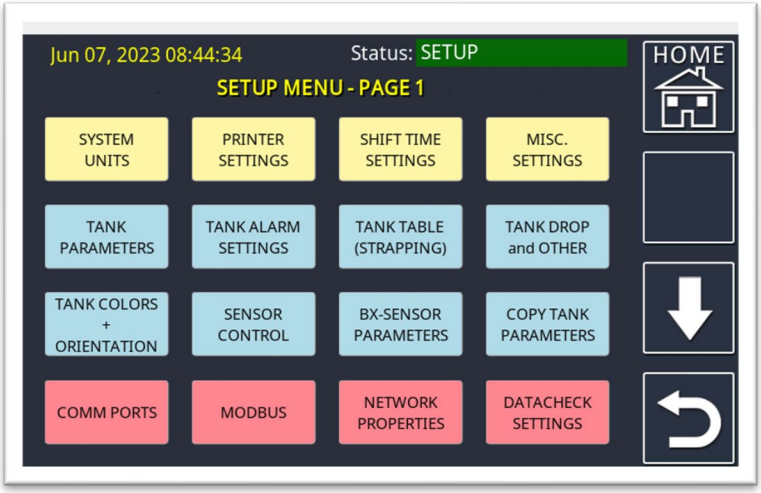


Figure 1.4

Setup Menu (Page 2):
Used to navigate additional system setup options. You can press the up arrow (right side of screen), or back button (U-turn arrow, bottom right), to go back to SETUP MENU (PAGE 1).
(See Figure 1.5)

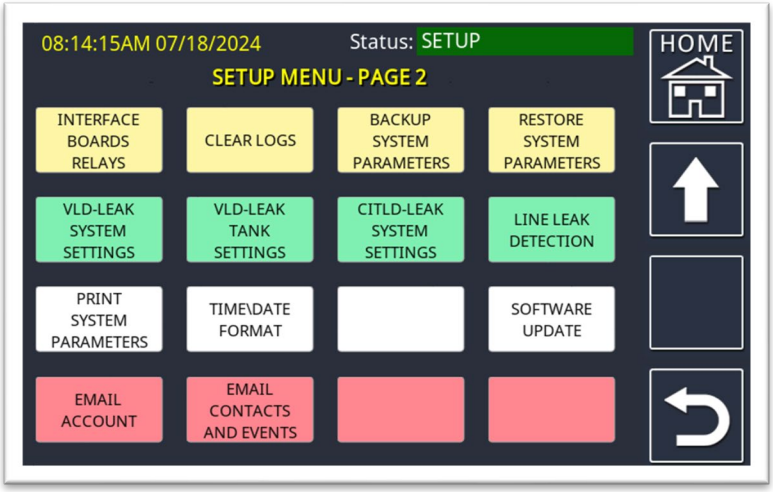


Figure 1.5

2. System Units

Set Units of Measurement:
Individually select units desired for volume, level, and temperature. All three can be set by selecting either US or METRIC option on the left side of this screen.

The SAVE button, on the right side of this screen, must be pressed to save any changes made.
(See Figure 2.1)

Note: Any changes to SYSTEM UNITS will prompt the controller to reset itself.

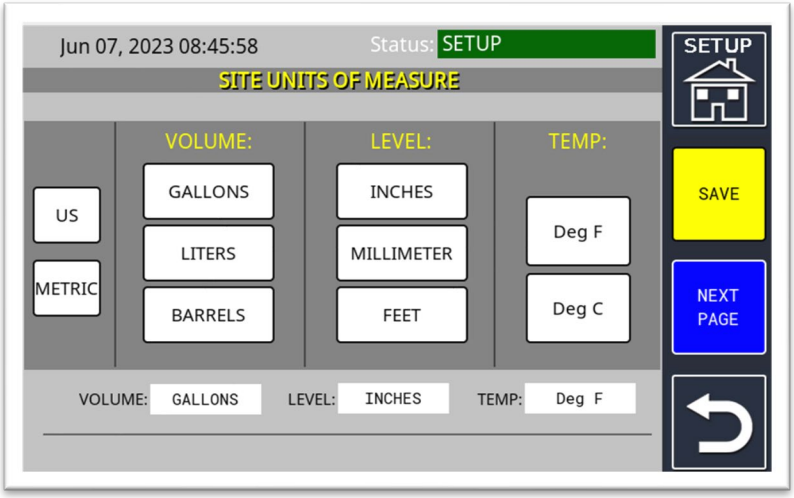


Figure 2.1

3. Printer Settings

Offers the ability to input and edit PRINT LINE HEADERS, and features printer functions.
(See Figure 3.1)

Note: The factory default is set for the local onboard printer (if installed). Network printing must be set up using the PROTEUS® web server page. Refer to ***document 500185*** (*Printing Via CUPS Interface*), available at www.omntec.com.

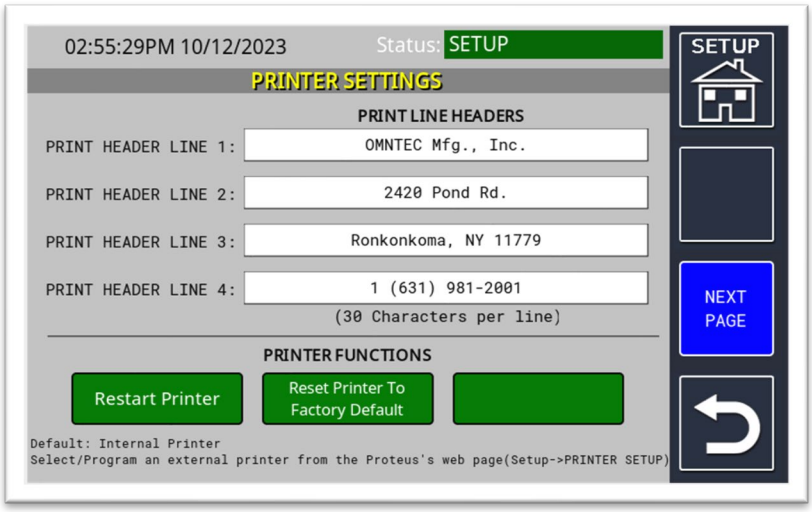


Figure 3.1

a) **Print Line Headers:** Typically, site-specific information that is printed on the system status report header and displayed on the web server's System Status Menu page. Examples of the information entered here are site name, site address, site phone number, manager's name, and other relevant site-specific details.
b) **Restart Printer:** Restarts the onboard printer to help resolve printer pause due to a printer error. You are prompted to choose YES or NO.
c) **Reset Printer To Factory Default:** Deletes all network printers associated with the PROTEUS controller. Activates the default onboard printer (if one is present).

4. Shift Time Settings

Shift Time Settings:
Setup for generating daily shift reports.
(See Figure 4.1)

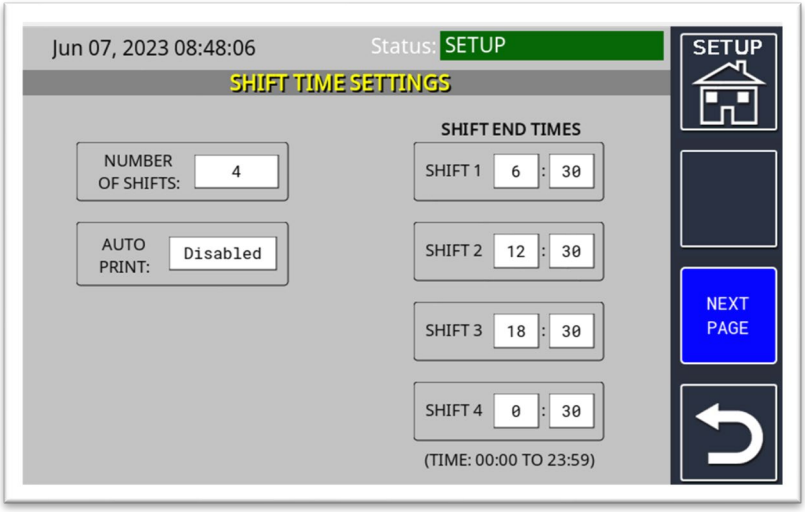


Figure 4.1

a) **Number Of Shifts:** Number of shift reports generated daily.
b) **Auto Print:** Will enable or disable an automatic printout at each shift's end time.
c) **Shift End Times:** End times for the number of shifts that were selected. If multiple shifts are selected, the end time of the last shift is the open time of the next shift.

5. Misc. Settings

Miscellaneous Settings:
Settings for remote horn and alarms, and available auto printouts. The SETUP MENU password can be changed here as well.

Press MISC. PAGE 2 (right side of screen), to advance to page 2 of MISCELLANEOUS SETTINGS for additional settings.
(See Figure 5.1)

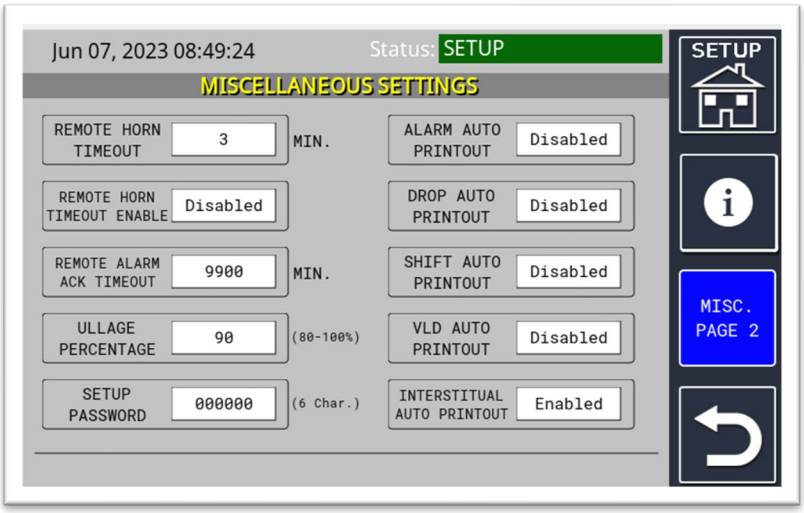


Figure 5.1

a) **Remote Horn Timeout:** Amount of time the horn will sound before automatically silencing.
b) **Remote Horn Timeout Enable:** Used to enable or disable the horn timeout.
c) **Remote Alarm ACK Timeout:** Amount of time before re-sounding the horn after it is silenced.
d) **Ullage Percentage:** The percentage of the tank's total capacity used to calculate the empty space in the tank. This is used to avoid overfilling the tank (e.g., if ULLAGE PERCENTAGE is set to 90%, the ullage will read 0 gallons when the volume reaches 90% of the tank).
e) **Setup Password:** To change the SETUP MENU password, press the white field. A keypad will appear. Enter a new password. When finished, press the SAVE button.
f) **Alarm Auto Printout:** Used to enable or disable an automatic printout of an Alarm report.
g) **Drop Auto Printout:** Used to enable or disable the automatic printout of a Drop report.
h) **Shift Auto Printout:** Used to enable or disable the automatic printout of a Shift report.
i) **VLD Auto Printout:** Used to enable or disable the automatic printout of a VLD report.
j) **Interstitial Auto Printout:** Used to enable or disable the automatic printout of an interstitial sensor weekly report.

Miscellaneous Settings (page 2): Additional settings to adjust the Home Screen and page change to delivery in progress.
(See Figure 5.2)

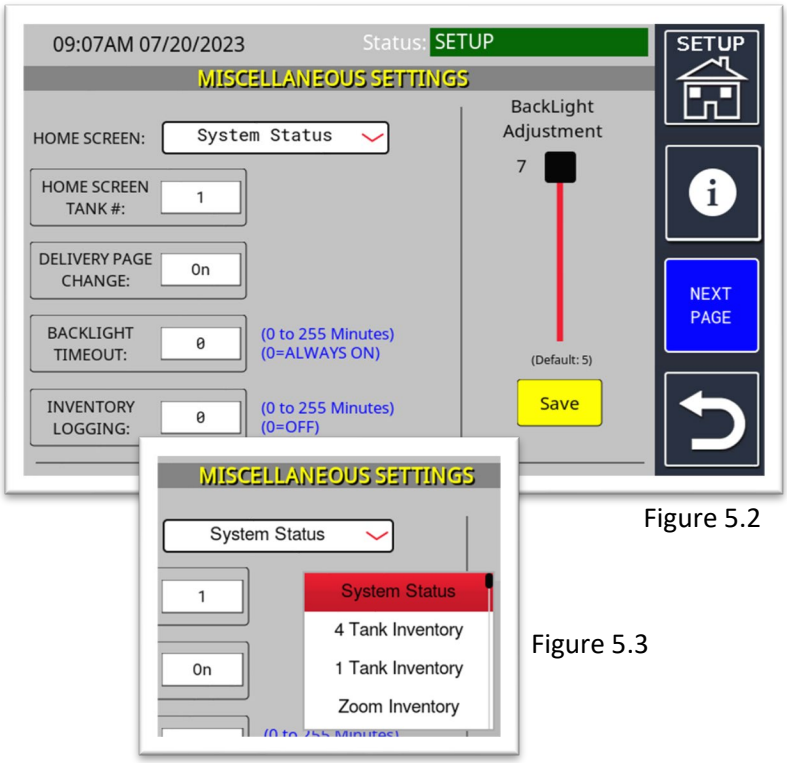


Figure 5.2

Figure 5.3

a) **Home Screen:** Choose which page you would like to set as the Home Screen. Use the dropdown (˅) to choose from SYSTEM STATUS, 4-TANK INVENTORY, 1-TANK INVENTORY, or ZOOM INVENTORY.
(See Figure 5.3)

b) **Home Screen Tank #:** If a 1-Tank or Zoom Inventory page is chosen, this will select which tank is shown.

c) **Delivery Page Change:** Automatically wakes up the display to show a tank with delivery in progress.

d) **Backlight Timeout:** This can be changed to dim the display between 1 and 255 minutes. It can also be set to zero which leaves the display always on. *Note: leaving the display always on will shorten the life of the display.*

e) **Inventory Logging:** Saves data every specified minute (select from 1 to 255 minutes; input 0 to disable this feature). This feature keeps the last 30 days of data before auto-clearing out the oldest logs. These logs are accessible via the controller's web server, through the REPORTS icon.

f) **Backlight Adjustment:** Adjusts the backlight brightness for all display screens. The SAVE button must be pressed to set this adjusted parameter.

g) **Information Icon** ⓘ **("i" in circle):** This will display a scrollable screen and details what each parameter does within MISCELLANEOUS SETTINGS.
(See Figure 5.4).

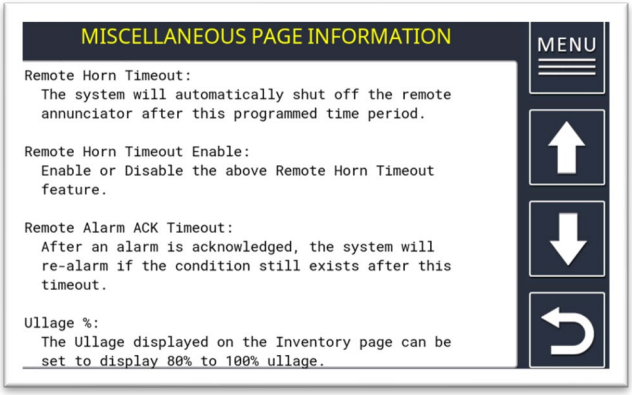


Figure 5.4

6. Tank Parameters

Setup - Tank Parameters:
Various parameters that are needed to obtain proper and accurate functionality.
(See Figure 6.1)

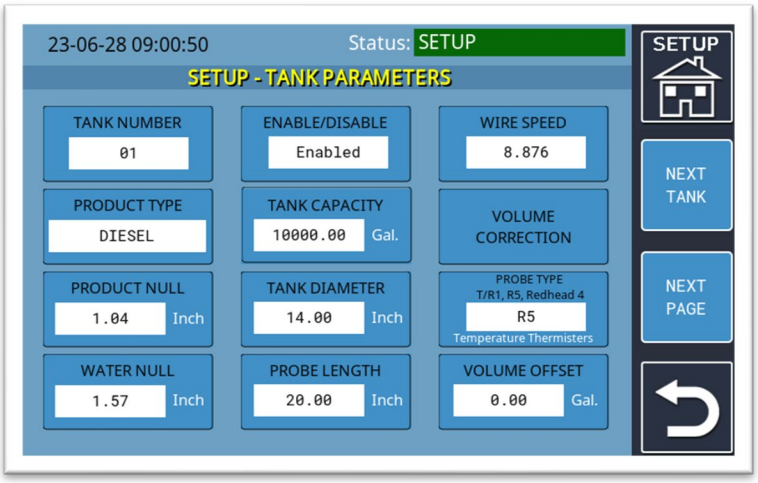


Figure 6.1

a) **Tank Number:** Selects the tank whose parameters are being set up or adjusted.
b) **Product Type:** Labels the contents of the tank (max of 40 characters).
c) **Product Null:** Amount subtracted from the gauging probe product level measurement to match the actual product level measurement (enter product height from stick reading).
d) **Water Null:** Amount subtracted from the gauging probe water level measurement to match the actual water level measurement (enter water height from stick reading).
e) **Enable/Disable:** Enable or disable the corresponding tank.
f) **Tank Capacity:** Total volume of the tank (obtained from the manufacturer's tank chart).
g) **Tank Diameter:** Height of the tank (highest point on the manufacturer's tank chart).
h) **Probe Length:** Overall probe length (in inches). Found in the CAT No. on the head of the probe, the last three numbers following ***L*** (see Figure 6.2; blue rectangle).
i) **Wire Speed:** Factory-defined wire speed. Obtained from the probe label on the head of the probe following ***WS:*** (see Figure 6.2; pink rectangle).
j) **Volume Correction:** Brings you to the Volume Correction page where you can choose from COEFFICIENT THERMAL EXPANSION, API GRAVITY, RELATIVE DENSITY or DENSITY. (See next page for additional Volume Correction details).
k) **Probe Type:** Shows how many temperature thermistors are in the probe associated with that tank. This is obtained from the CAT No. on the head of the probe (see Figure 6.2; green square). ***R1*** or ***T1***; enter 1. ***R5***; enter 5. If using a "redhead" probe; enter 4.
l) **Volume Offset:** Amount added to the volume reading for further calibration.

Enter corresponding values in each box. Press the NEXT PAGE icon to continue programming the alarm parameters on that same tank.
Note: Figure 6.2 (red square) represents the number of floats on that probe. ***F1*** = one float, ***F2*** = two floats.

Figure 6.2

Volume Correction (cont. from 6i):
After selecting volume correction, you can select which correction method you will use.
(See Figure 6.3).

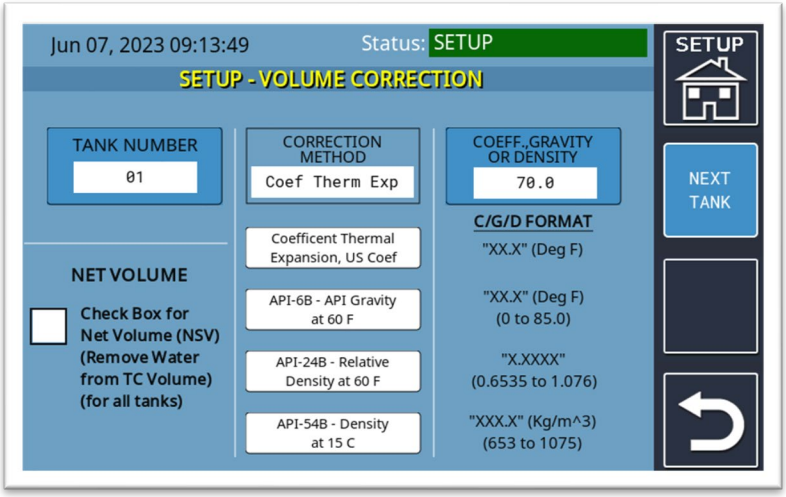


Figure 6.3

Select the Correction Method button and set either the COEFFICIENT THERMAL EXPANSION, API GRAVITY, RELATIVE DENSITY, or DENSITY option fields (middle column). Use the data format shown (right column) to input to the Coeff., Gravity or Density field (top right column). Thermal coefficient of expansion x 10-5 (obtained from thermal coefficient table (e.g., Gasoline = 70, Diesel = 45, etc.).

You may also remove the water volume from the temperature compensated measurement by pressing the check box (this will show as net volume) in the bottom left column.

7. Tank Alarm Settings

Tank Alarms And Set Points:
The parameters used to control how the alarms will function. (See Figure 7.1)

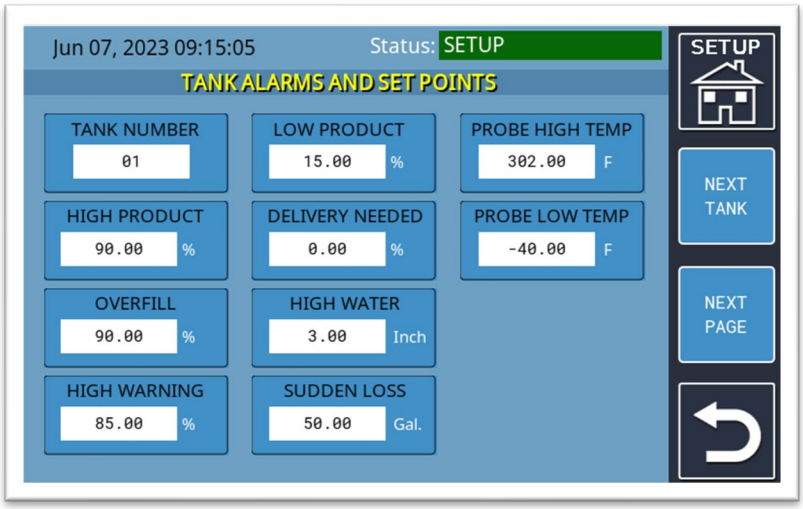


Figure 7.1

a) **Tank Number:** Selects the tank whose alarms and set points are being adjusted.
b) **High Product:** Percentage of volume that will trigger a high-level alarm, typically 90% (max 95%).
c) **Overfill:** Percentage of volume that will trigger an overfill alarm, set for the same percentage as High Product. Triggers during delivery in progress (value input of 101 will disable).
d) **High Warning:** Percentage of volume that will trigger a high-warning level.
e) **Low Product:** Percentage of volume that will trigger a low-level alarm (minimum of 1 percent; cannot be set to zero).
f) **Delivery Needed:** Percentage of volume that will trigger a delivery-needed alarm (value input of 0 will disable this feature).
g) **High Water:** The water level that will trigger a high-water alarm.
h) **Sudden Loss:** The amount of decrease needed during a VLD test to trigger a sudden-loss alarm.
i) **Probe Temp High:** Temperature needed to activate a probe high-temp alarm.
j) **Probe Temp Low:** Temperature needed to activate a probe low-temp alarm.

8. Tank Table (Strapping)

Tank Chart Points:
Used to create the incremental chart level points for each tank. (See Figure 8.1)

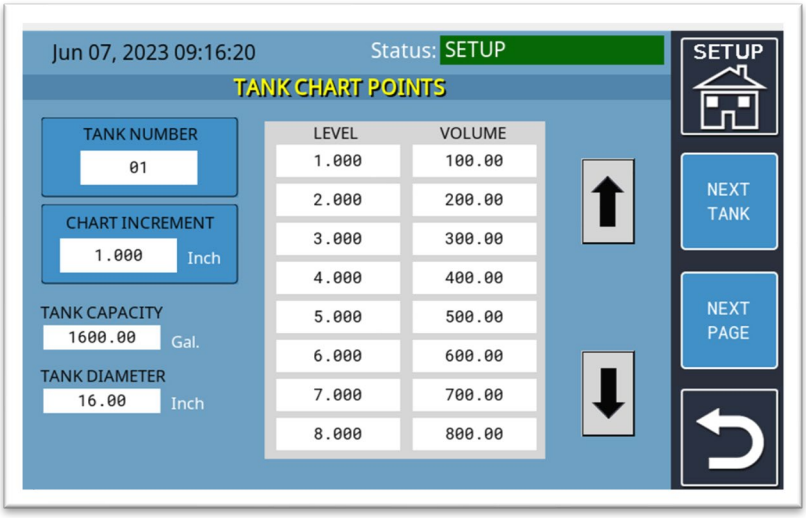


Figure 8.1

a) **Tank Number:** Selects the tank whose chart level points are being set up or adjusted.
b) **Chart Increment:** Used to calculate how many chart levels are generated for the chart. Divide the tank diameter by the chart increment to get the number of chart levels. Enter the correct volume for each level given in the tank chart. It is recommended to input at least 20-increment chart levels for accuracy, based on that specific tank manufacturer's tank chart. Linear tanks can use 2-increment chart levels.

9. Tank Drop and Other

Setup Tank Parameters:
Information needed to provide more accurate inventory and delivery data. (See Figure 9.1)

a) **Tank Number:** Selects the tank whose parameters are being set up or adjusted.
b) **Drop Threshold:** The volume amount needed to initiate a delivery in progress.
c) **Drop Dwell Time:** Time delayed after a drop is completed before generating the drop report.
d) **Product Code:** User-defined number that identifies the tank's product for use with remote commands.

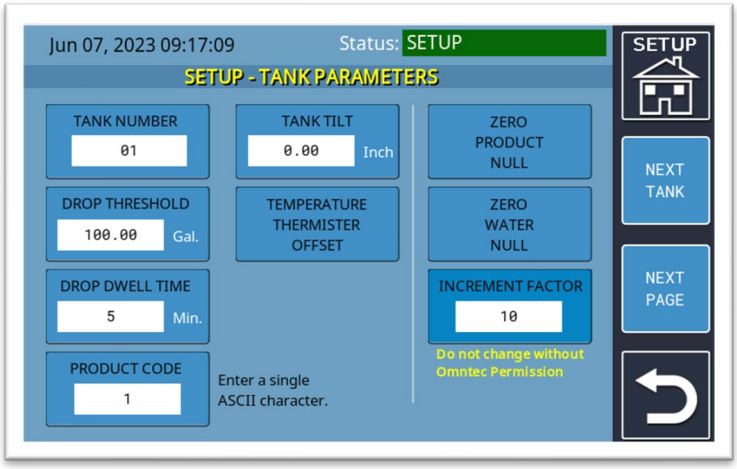


Figure 9.1

e) **Temperature Thermistors Offset:**
Used to offset temperatures for the gauging probe. The number of TEMP OFFSETS is determined by the probe type.
Type R5:
Five-thermistor probe (five Temp Offsets).
(See Figure 9.2)

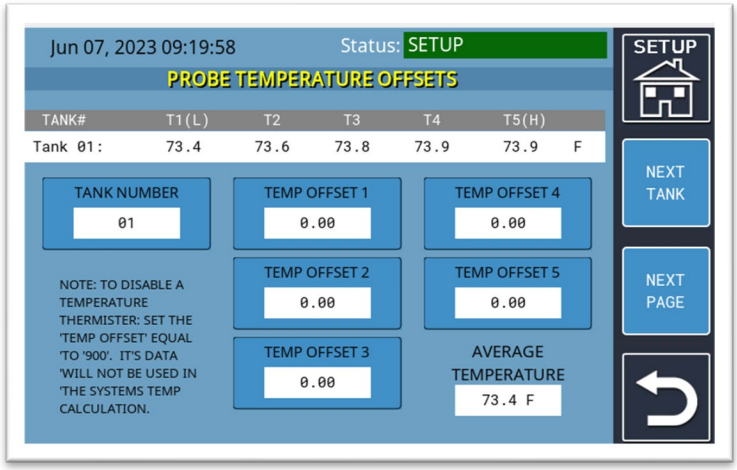


Figure 9.2

Type T1/R1:
One-thermistor probe (one Temp Offset).
(See Figure 9.3)

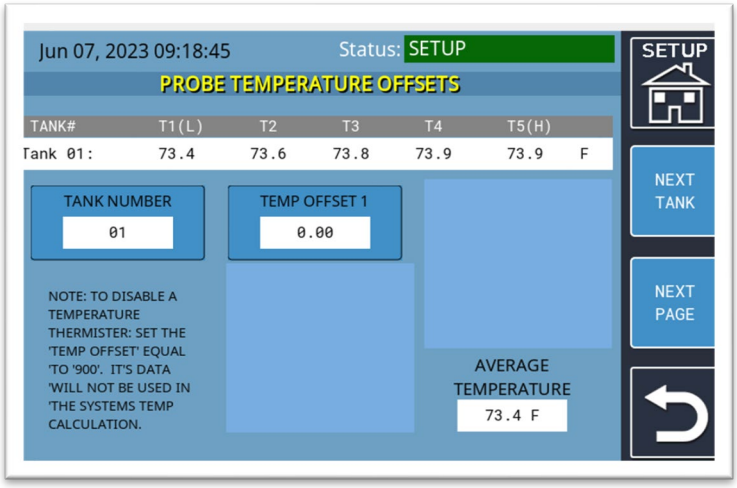


Figure 9.3

f) **Zero Product Null:** Resets the product null to the factory-default value of 1. You are prompted to press YES or NO. (See Figure 9.4)

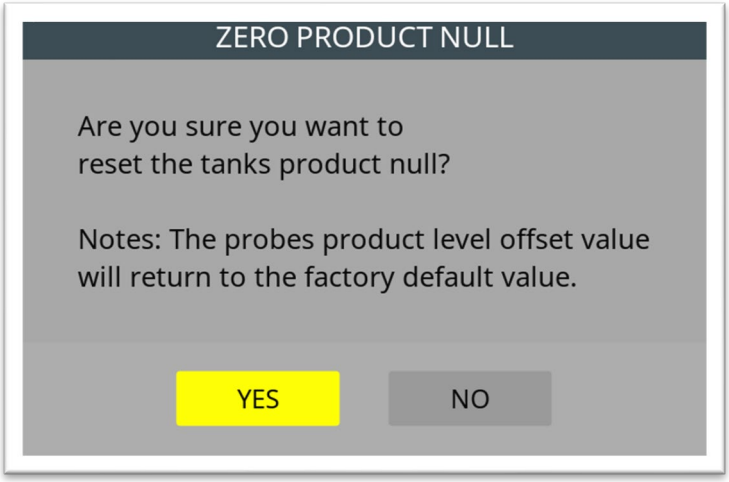


Figure 9.4

g) **Zero Water Null:** Resets the water null to the factory-default value of 1.57. You are prompted to press YES or NO. (See Figure 9.5)

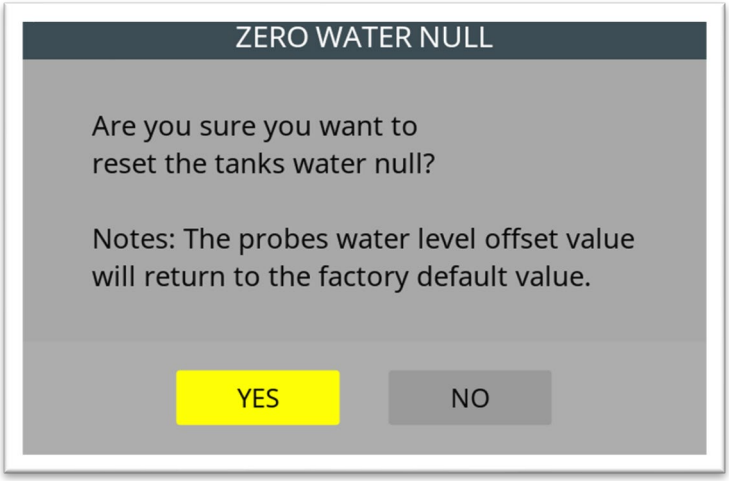


Figure 9.5

h) **Increment Factor:** Requires a password. This is used to change the probe sensitivity. ***Only change after consulting with OMNTEC®.*** (See Figure 9.6)

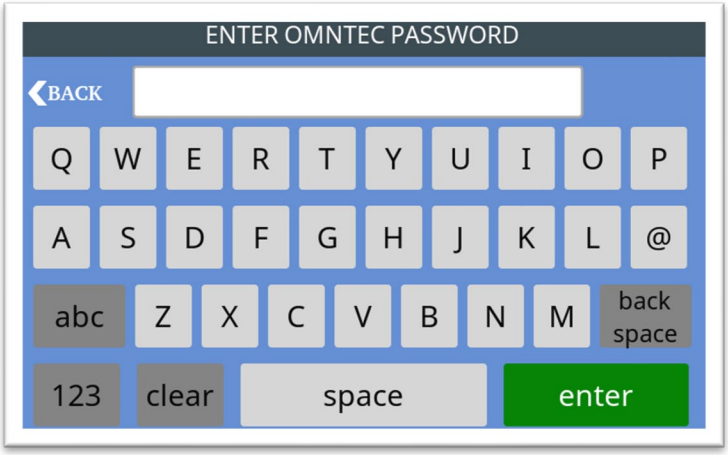


Figure 9.6

i) **Tank Tilt:** Number obtained by the tank tilt formula to further calibrate probe levels. (See Figure 9.7)

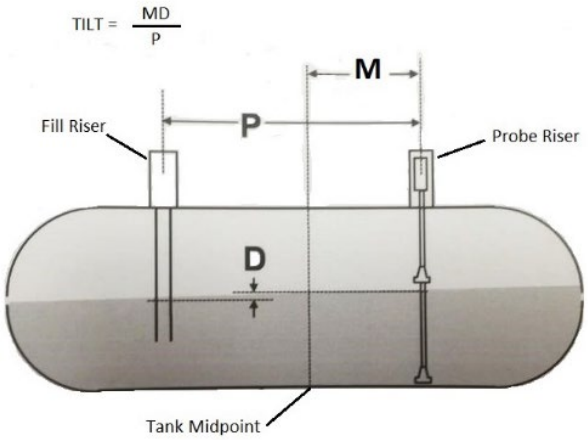


Figure 9.7

P = The center of the fill riser opening to the center of the probe riser opening.
M = The distance of the center of the probe riser opening to the center of the tank.
D = The difference in gross liquid level between the fill opening and the riser opening (fill – probe).

Note: Not required if the location of the MTG probe is in the center of the tank or if the tank is level**.**

10. Tank Colors and Orientation

Set Tank Color + Orientation:
Used to control the (visual) display settings for each tank.
(See Figure 10.1)

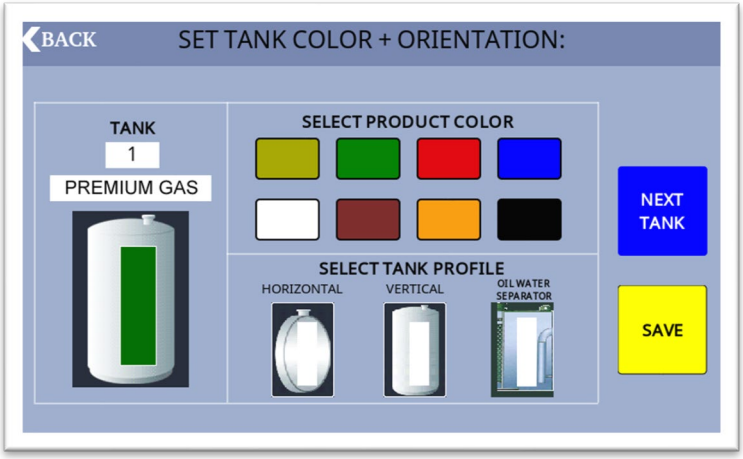


Figure 10.1

a) **Select Product Color:** Choose a color to visually distinguish the display contents of each tank, based on the API color code system.
b) **Select Tank Profile:** Choose the visual tank orientation profile (HORIZONTAL, VERTICAL, or OIL WATER SEPARATOR).

IMPORTANT: The PROTEUS is now programmable for oil/water separator (OWS) applications. When choosing the OIL WATER SEPARATOR icon, the tank alarm points will change to HIGH-HIGH OIL, HIGH OIL, HIGH LIQUID, LOW LIQUID, and LOW WATER alarms.
(See Figure 10.2).

If you have a PROTEUS OWS system, please refer to our PROTEUS Oil/Water Separator Programming & Installation supplement for additional programming and installation details (***document DI00014 DI00015 DI00018 DI00020 DI00026-7***) available at www.omntec.com/support/documents (O & M Manuals tab).

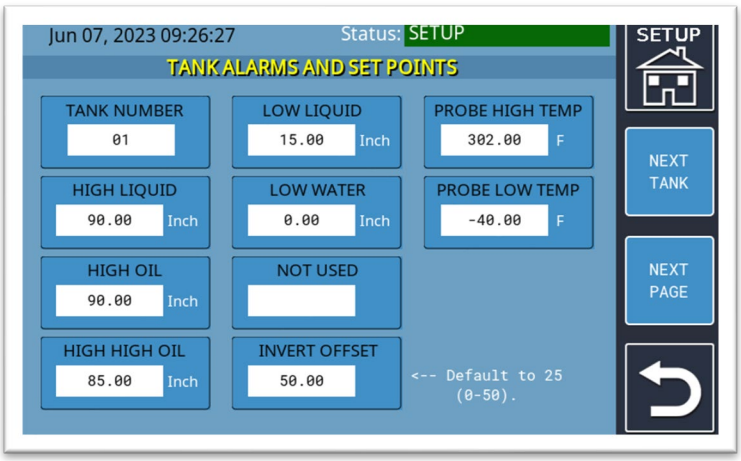


Figure 10.2

11. Copy Tank Parameters

Copy Tank Parameters:
Used to copy the full set of tank parameters from one tank to another tank.
(See Figure 11.1)

Note: You must still program unique parameters for each tank such as product type and probe wire speed where applicable.

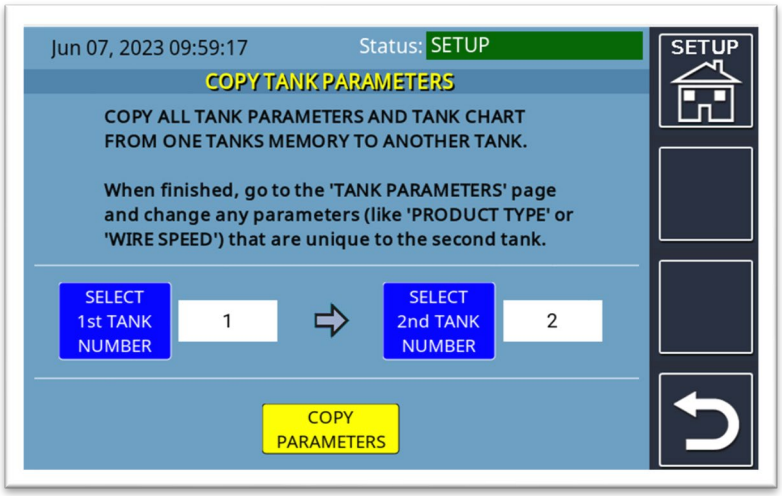


Figure 11.1

12. BX-Sensor Control

Sensor Control:
This page is used to delete or add BX-Sensors. When there are no sensors installed, the SENSOR NUMBER field will display “00”. (See Figure 12.1)

When replacing a sensor, it is recommended to ***first*** delete (physically and electronically) the old sensor from the system before wiring the new sensor, so when you add the new sensor it will take the same sensor assignment place of the old sensor. This is helpful when keeping relay events from being reprogrammed.

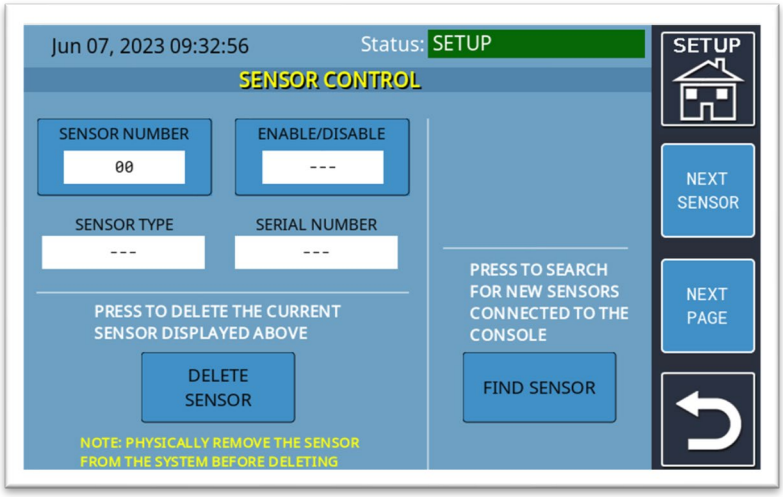


Figure 12.1

Deleting/Replacing a Sensor:

a) Turn off the PROTEUS and physically disconnect the (old) sensor from the ATG system.
b) Turn on the unit and go to SETUP MENU.
c) Go into SENSOR CONTROL and toggle to the sensor to delete from the programming. Press the DELETE SENSOR button. When prompted, answer YES.
(See Figure 12.2)

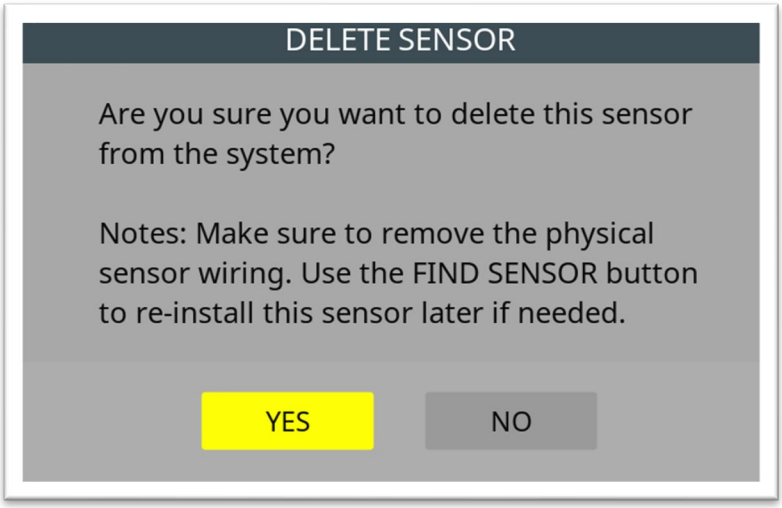


Figure 12.2

Adding a Sensor:

a) Turn off the PROTEUS and connect the (new) sensor to the ATG system.
b) Turn on the unit.
c) From the SETUP MENU, go into SENSOR CONTROL and select the FIND SENSOR button. When prompted, answer YES.
(See Figure 12.3)

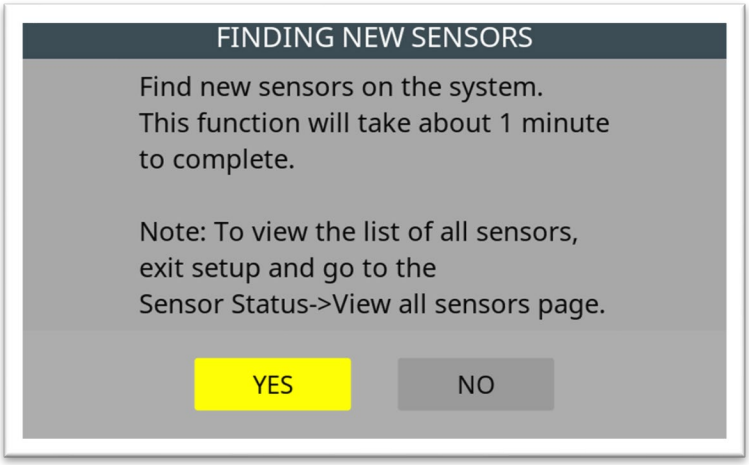


Figure 12.3

This will start the FINDING SENSORS process. This allows the system to electronically install the new sensor. It may be necessary to repeat this step for systems with multiple new sensors.
(See Figure 12.4)

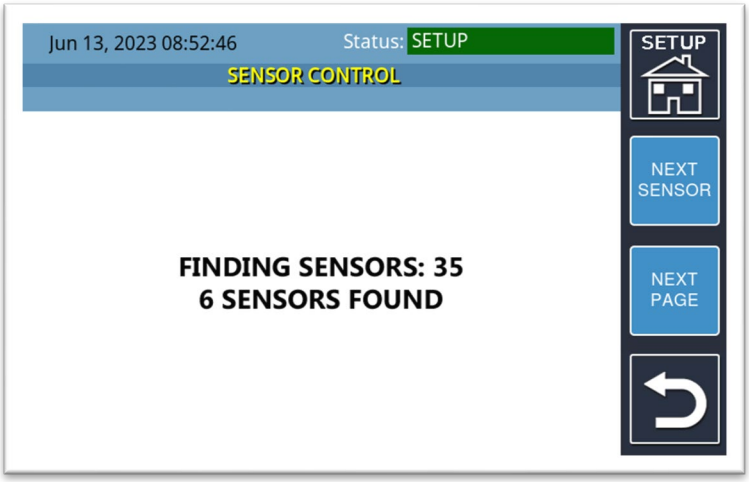


Figure 12.4

The system confirms (or finds) the new sensor(s).

Pressing the NEXT PAGE button will bring you into BX-SENSOR PARAMETERS where you set the sensor's labels.
(See Figure 12.5)

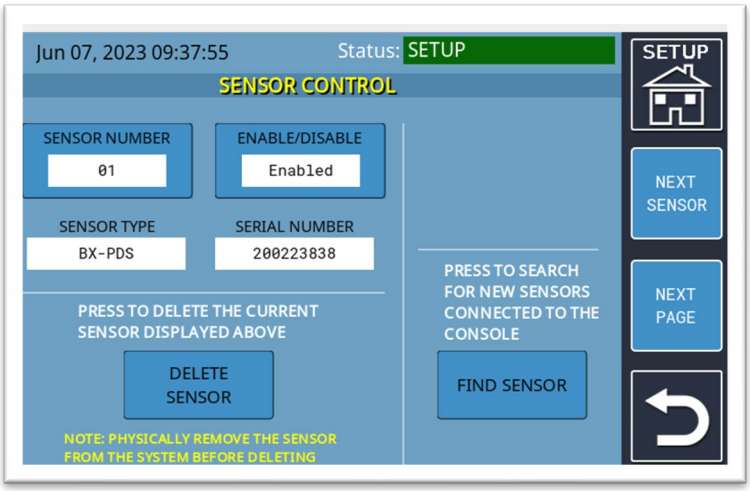


Figure 12.5

13. BX-Sensor Parameters

Sensor Parameters:
These are the parameters used to define the sensor type, location, and labeling.
(See Figure 13.1)

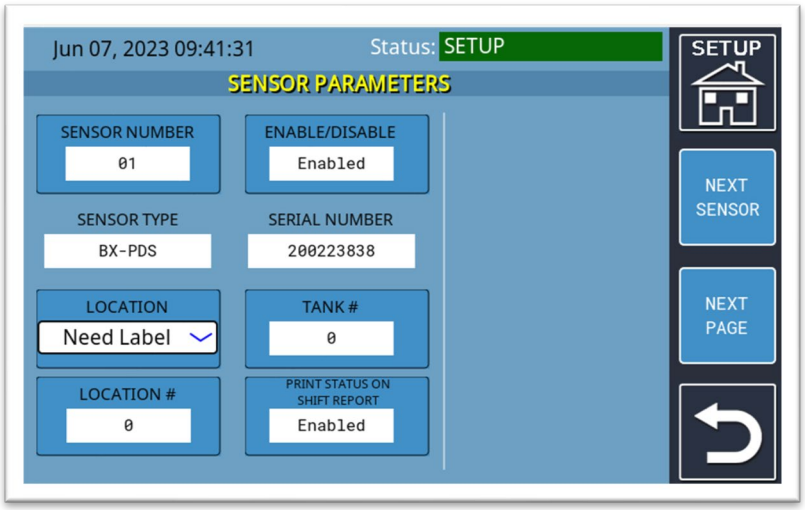


Figure 13.1

a) **Sensor Number:** Sensor number assigned by the system; selects a sensor for setup.
b) **Sensor Type:** Sensor Type assigned by the system based upon serial number.
c) **Location:** Predefined and user-selectable location labels, via the dropdown (˅) menu, to describe where the sensor is located. Choose OTHER to create a custom label not predefined in this list. (See Figure 13.2)

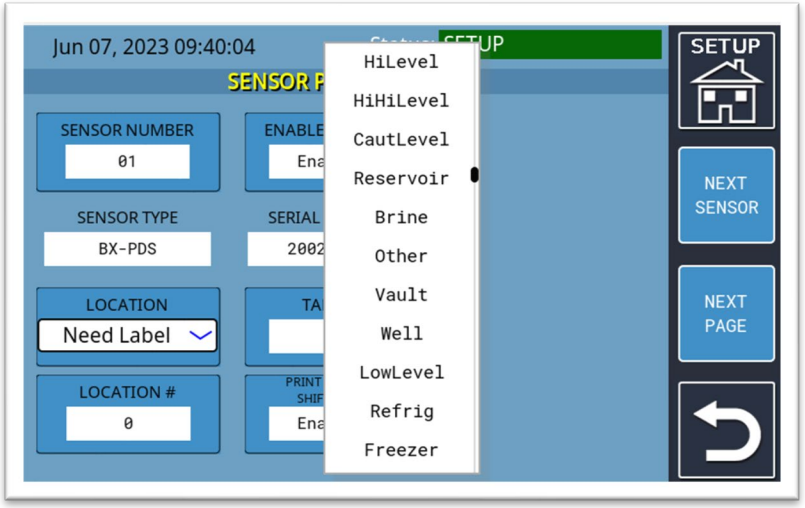


Figure 13.2

d) **Location #:** If more than one sensor is present in the same location and tank number then you may set a location number to differentiate between both sensors.
e) **Enable/Disable:** Shows if the selected sensor is enabled or disabled. A disabled sensor will not trip an alarm but will show as disabled, or inactive, in the sensor list.
f) **Serial Number:** Serial number that is factory-programmed into each sensor.
g) **Tank #:** The tank number assigned to this sensor for labeling purposes.
h) **Print Status On Shift Report:** Enables/Disables sensor status for a shift report.

i) **Temperature Sensor:** The BX-TC-1 is designed to monitor temperatures ranging from -58°F to 302°F (-50°C to 150°C) with an accuracy of ±2°F.

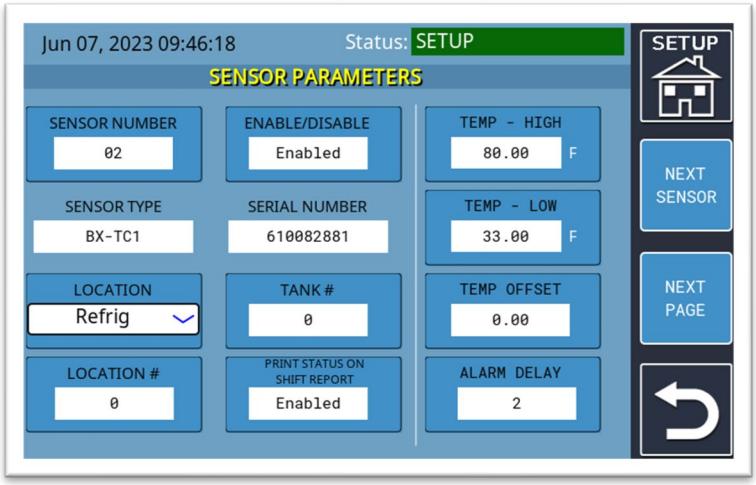


Figure 13.3

The BX-TC-1 has four additional programmable sensor parameters:

- TEMP-HIGH: High temperature alarm point.
- TEMP-LOW: Low temperature alarm point.
- TEMP OFFSET: Used to calibrate sensor to actual temperature reading.
- ALARM DELAY: Number of sensor test cycles verifying temperature before triggering an alarm.

(See Figure 13.3)

j) **Vapor Sensor:** The BX-VS is designed to monitor surface absorption of volatile organic products (e.g., gasoline, diesel, and motor fuels).

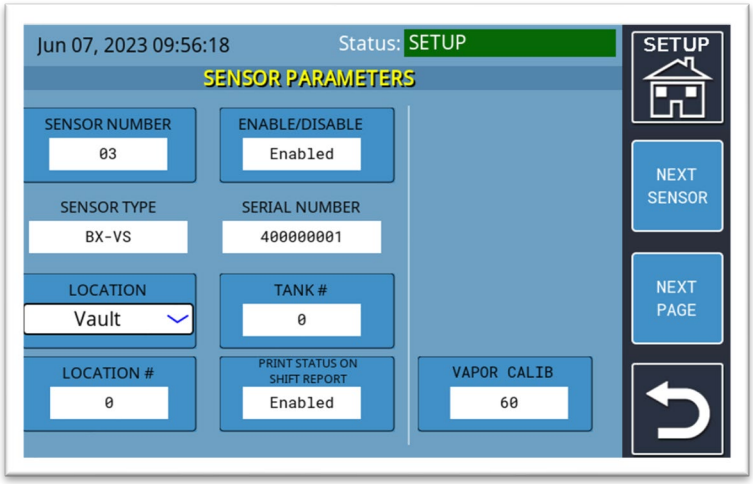


Figure 13.4

The BX-VS has one additional programmable sensor parameter:

- VAPOR CALIB: Used to calibrate the vapor trigger point. Range value is 1 (less sensitive) to 255 (more sensitive), with 60 being the (factory-default) normal.
  Note: Calibration of our BX-VS sensors is a trial-and-error process; set, test, and adjust (sometimes repeatedly) based on the specifics of the deployment environment and vapor being monitored in the application.

(See Figure 13.4)

14. Comm Ports

Comm Port Settings:
Used to program the settings for onboard RS-232, or two Option Bus expansion boards, e.g.: RS-485.
(See Figure 14.1)

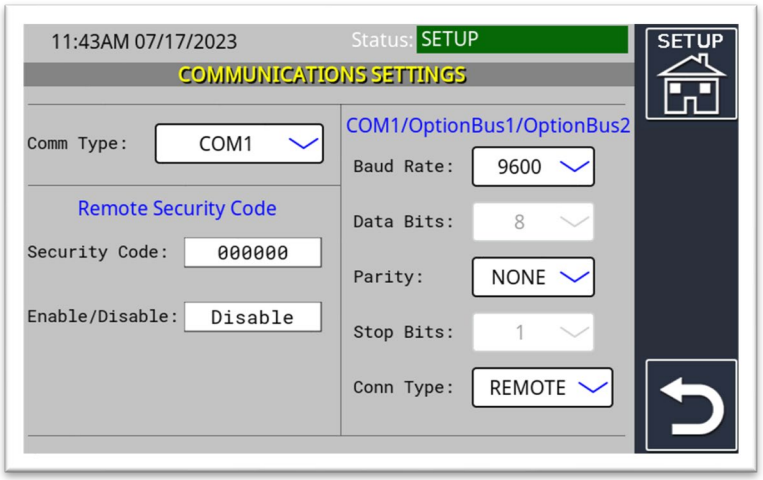


Figure 14.1

a) **Comm Type:**
Dropdown (˅) options available are:
- COM1 (RS232)
- Option Bus 1
- Option Bus 2

(See Figure 14.2)

b) **Remote Security Code:**
Provides extra protection when using Ethernet Telnet ports.

c) **Enable/Disable:**
Enables or disables remote security code.

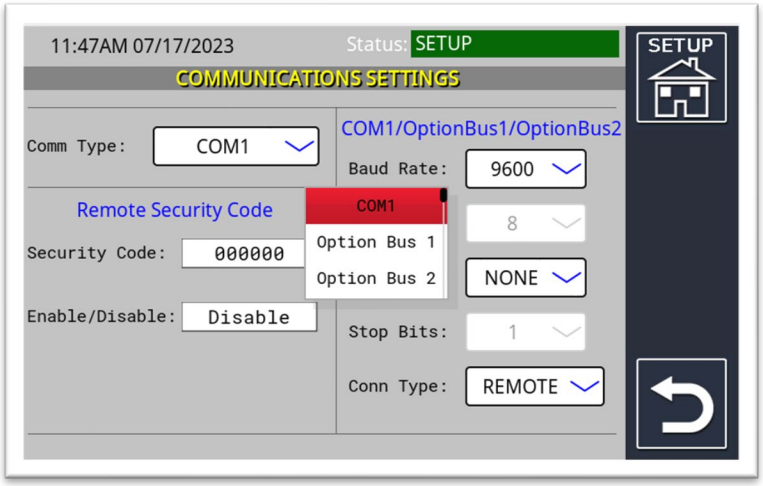


Figure 14.2

d) **Baud Rate:** Selections available from the dropdown (˅) menu are 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud.
(See Figure 14.3)

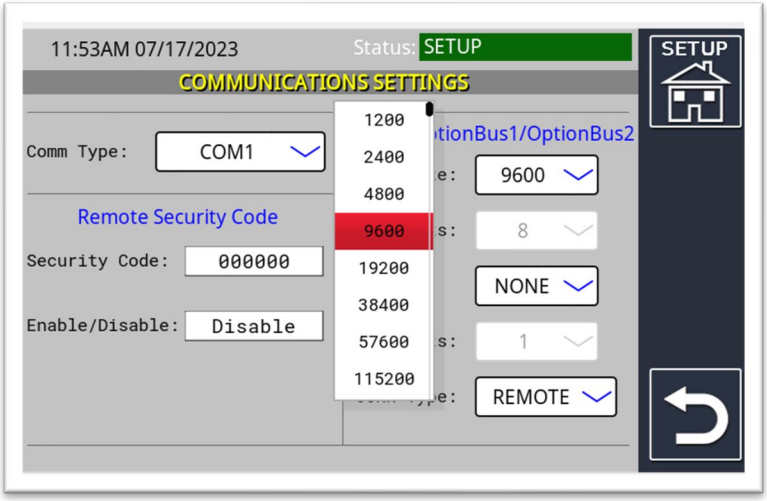


Figure 14.3

e) **Data Bits:** Factory set at 8. This cannot be changed. (See Figure 14.1)

f) **Parity:** Selections available from the dropdown (ᵛ) menu are NONE, ODD, and EVEN. (See Figure 14.4)

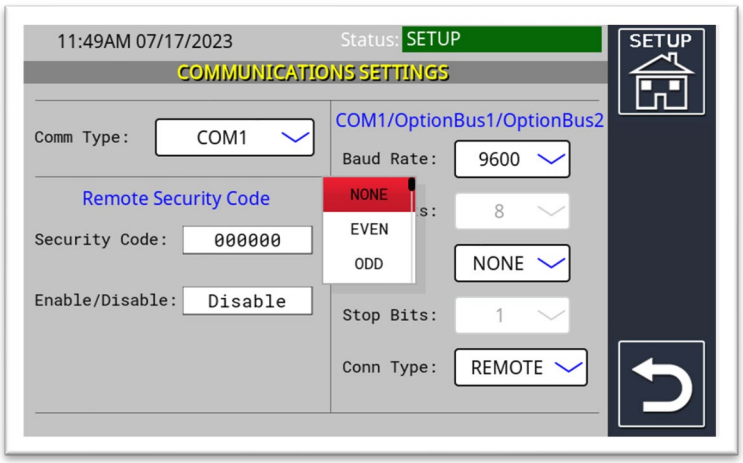


Figure 14.4

g) **Stop Bits:** Factory set at 1. This cannot be changed.

h) **Conn Type**: For Com 1 (RS-232; communications only), the selections available from the dropdown (ᵛ) menu are REMOTE (OMNTEC PC, Mini-Me, or industry-standard protocol) and MODBUS. (See Figure 14.5)

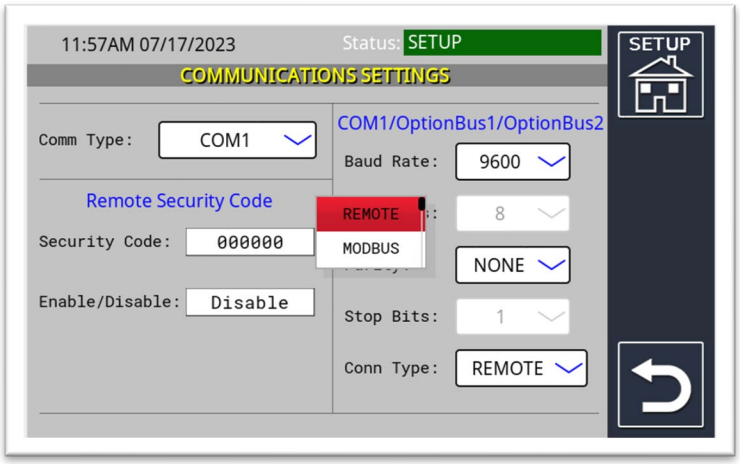


Figure 14.5

i) Option Bus 1 and Option Bus 2 can be used for either RS-232 or RS-485. Other modules can be used in these slots. The usable selections from the dropdown (ᵛ) menu are REMOTE, MODBUS, RD625, or RD7CTS (Mini-Me).

Note: RD625 (digital display) only operates on RS-485 communication and will ***not*** function with RS-232. (See Figure 14.6)

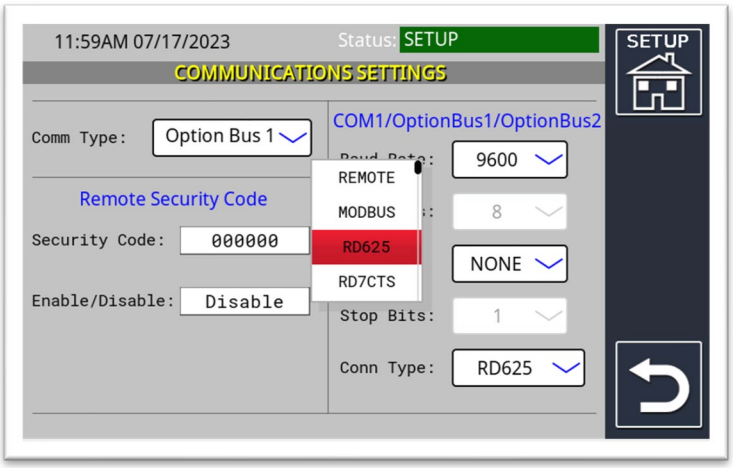


Figure 14.6

15. Modbus

Modbus Settings:
Used to program the settings for Modbus.
(See Figure 15.1)

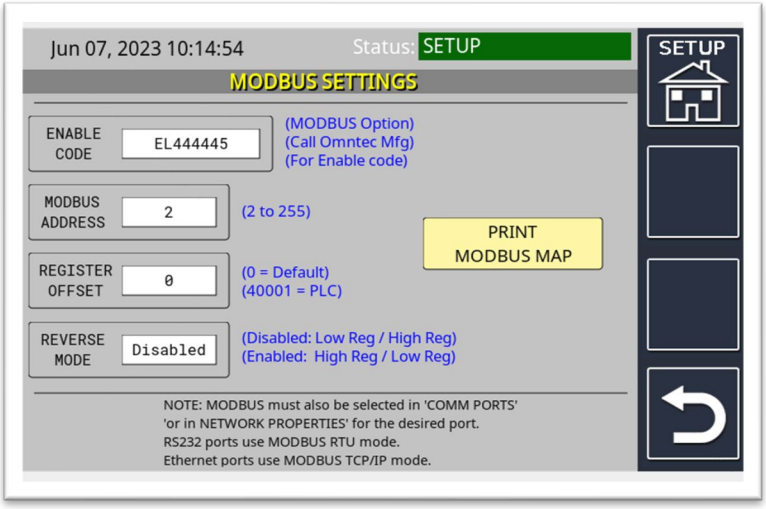


Figure 15.1

a) **Modbus Address:** Unique Modbus slave address.
b) **Register Offset:** Holding register offset, typically set to 0 or 40001.
c) **Enable Code:** A Modbus-enabled code is required from OMNTEC to run this optional feature.
d) **Reverse Mode:** When enabled, reverses the high and low registers for certain PLCs or computer software that accepts a different Modbus format.
e) **Print Modbus Map:** Prints the current register range for enabled probes and sensors.

16. Network Properties

Network Protocol Properties: Used to setup either a static or dynamic (DHCP) IP and other relevant networking properties. (See Figure 16.1)

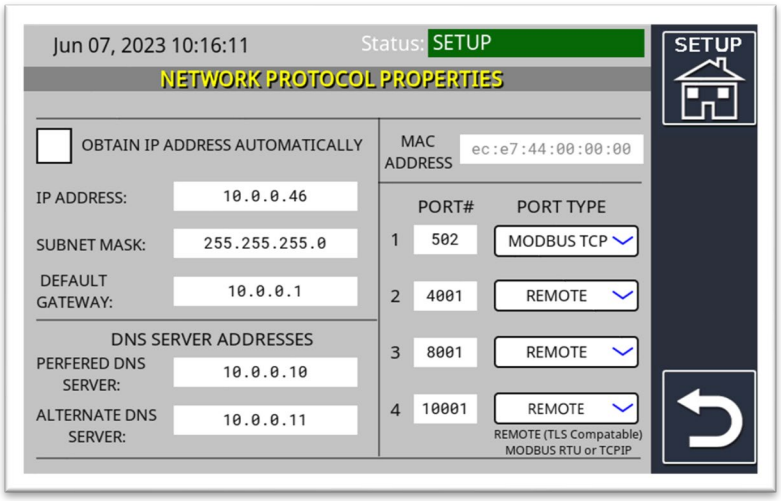


Figure 16.1

a) **Obtain IP Address Automatically:** Pressing the square box to the left of this adds or removes an "X" checkmark, which toggles between static or dynamic (DHCP) IP address functionality.
b) **IP Address:** Static IP address assigned to the PROTEUS.
c) **Subnet Mask:** Subnet Mask to match the existing network.
d) **Default Gateway:** Default Gateway to match the existing network.
e) **Preferred DNS:** Primary Domain Name Server address.
f) **Alternate DNS:** Secondary Domain Name Server address.
g) **MAC Address:** Each PROTEUS is programmed with a unique MAC address that cannot be changed by the user.
h) **Telnet Port #:** The default telnet ports are factory set to 502 (MODBUS TCP), 4001, 8001, and 10001, and can be changed to suit network requirements.
i) **Port Type:** Selections available from the dropdown (˅) menus are REMOTE, MODBUS RTU, and MODBUS TCP. (See Figure 16.2)

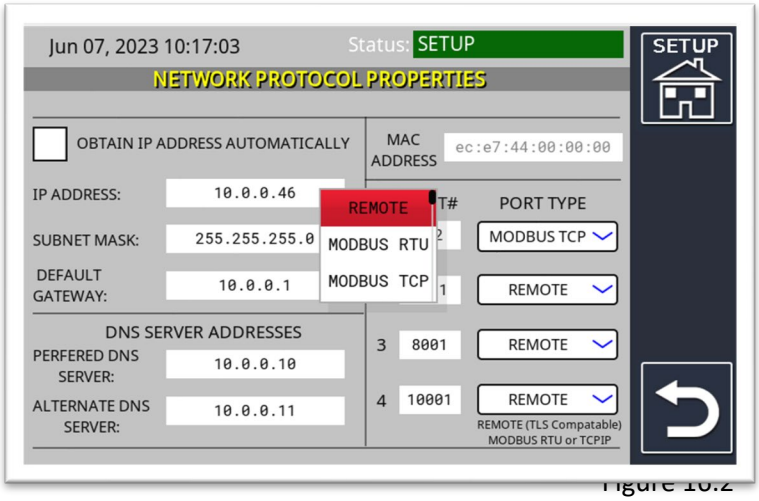


Figure 16.2

j) **VPN Settings Icon:** Allows the ability of ENABLING or DISABLING the Virtual Private Network (VPN) feature.
The PROTEUS VPN is a secure, encrypted communication channel that is intended for use with OMNTEC Cloud-based services. In some cases, it may be used for OMNTEC tech support to remotely access the controller to assist in gathering data for troubleshooting.
See Figures 16.3, 16.4, and 16.5 for more details on VPN Settings.

VPN Settings Icon (cont'd):
By factory default, VPN is disabled. The TERMS OF SERVICE (ToS) are displayed. Choose the ENABLE radio button to enable the VPN service. Choosing to enable this VPN service means you understand and agree to the displayed TERMS OF SERVICE (ToS).
(See Figure 16.3)

Note: OMNTEC Manufacturing, Inc. is not responsible for any data loss or breach when the user chooses to enable VPN service.

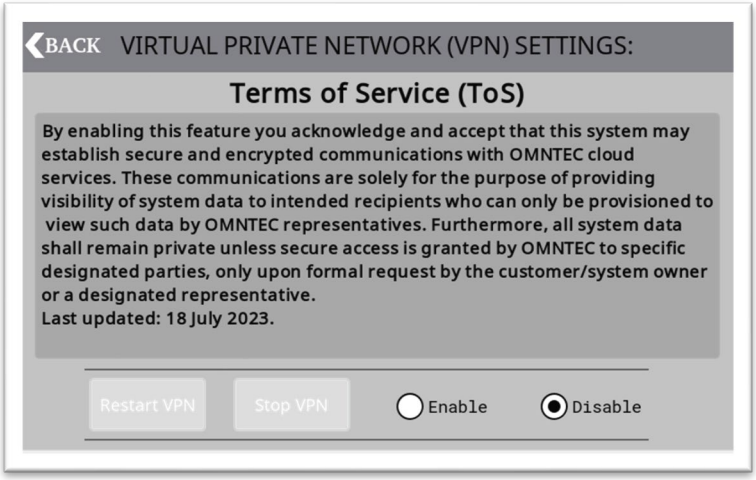


Figure 16.3

When prompted, click YES to confirm you want to enable the VPN connection.
(See Figure 16.4)

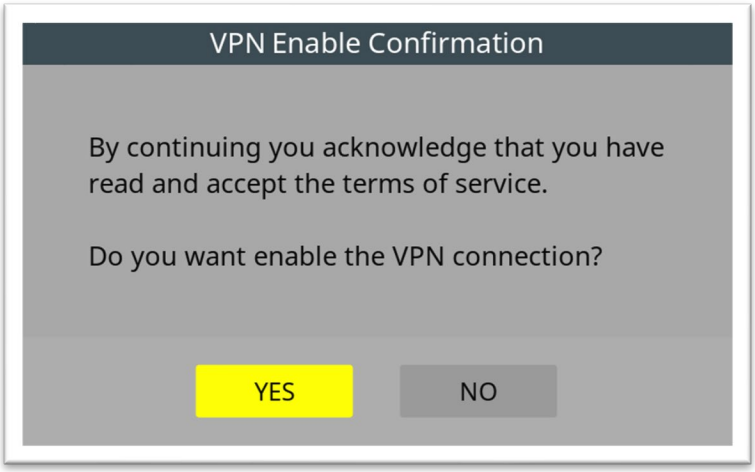


Figure 16.4

The VPN STATUS will confirm that VPN has been established. RESTART VPN and STOP VPN will do just that. To prevent the VPN from running on the next power cycle, choose the DISABLE radio button, until you ENABLE it again.
(See Figure 16.5)

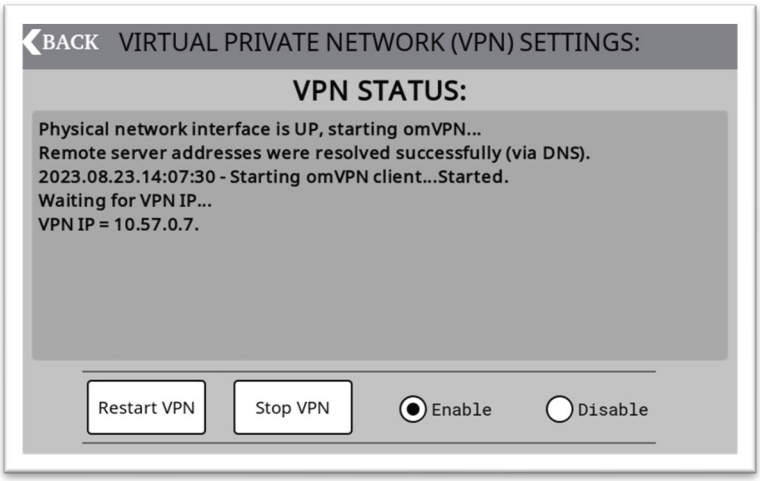


Figure 16.5

17. DataCheck™

Datacheck™ Settings:
This allows the user to program Datacheck™ wireless transmitter settings, if applicable to your specific system.
(See Figure 17.1)

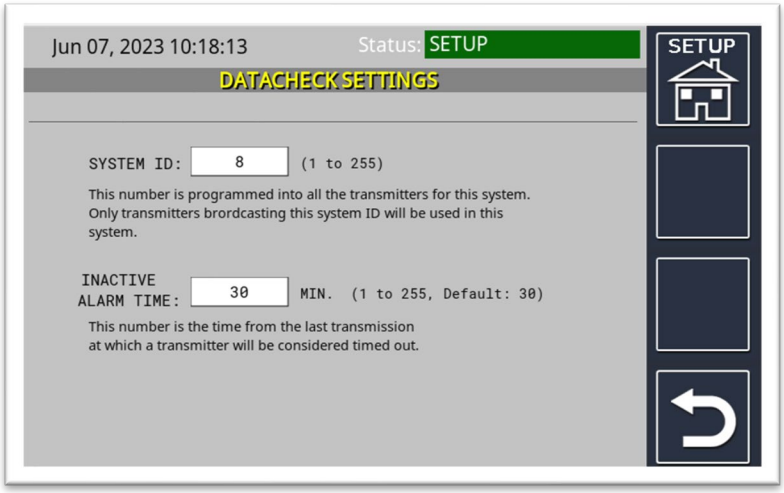


Figure 17.1

a) **System ID:** This number value is programmed into all the transmitters for this system. Only transmitters broadcasting this system ID will be used in this unit (System ID values, 1 to 255).
b) **Inactive Alarm Time:** This number value is the time from the last transmission at which the transmitter will time out (Inactive Alarm Time values, 1 to 255. The factory default is 30).

18. Interface Boards and Relays

Interface Boards Relays:
Depending on which model you have, and its configuration, more boards may be displayed.

Press the MCU EVENTS RELAY / EMAIL icon in the top left corner to configure the onboard MCU relays. Press each red relay board to program either 8-channel or 4-channel relay boards (if applicable). (See Figure 18.1)

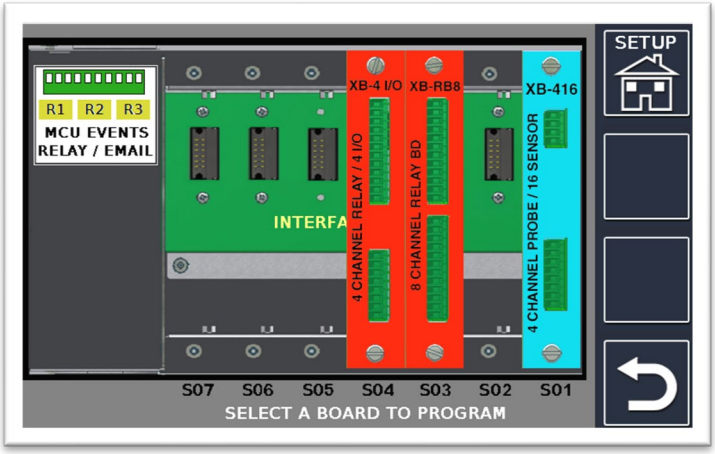


Figure 18.1

Program Events:
Enter the appropriate device selection for event programming.

Program Relay/Input Modes:
Enter the appropriate device selection for mode programming. This is used to select the mode of each relay (LIGHT, HORN, or RELAY), and input option.

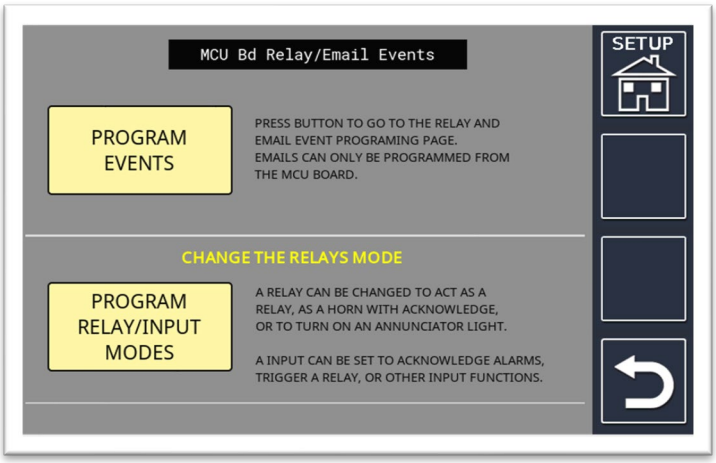


Figure 18.2

Fail-Safe Mode (XB-4IO and RB8):
This sets the correct relay fail-safe operation upon AC power loss.
(See Figure 18.3)

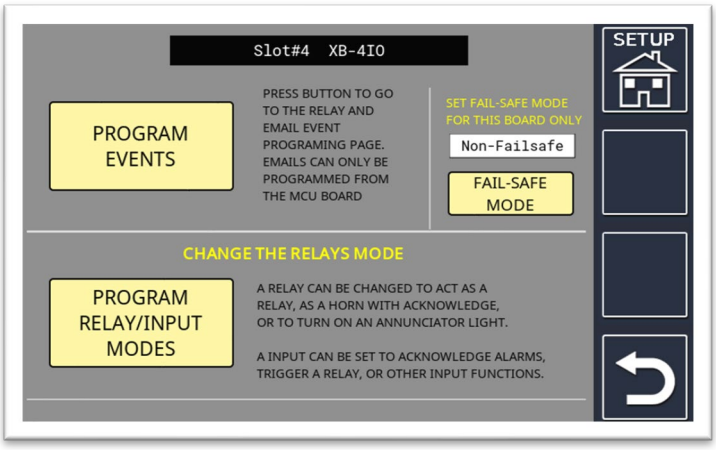


Figure 18.3

Program Events:

30 events that can be programmed for the onboard MCU relays. 100 events can be programmed for the XB-RB8 (PROTEUS X), XC-R8 (PROTEUS K), and XB-4IO boards (PROTEUS X). The event list may show empty or already programmed events.

To program an event, press on the event line you would like to program and navigate to the event programming page.
(See Figure 18.4)

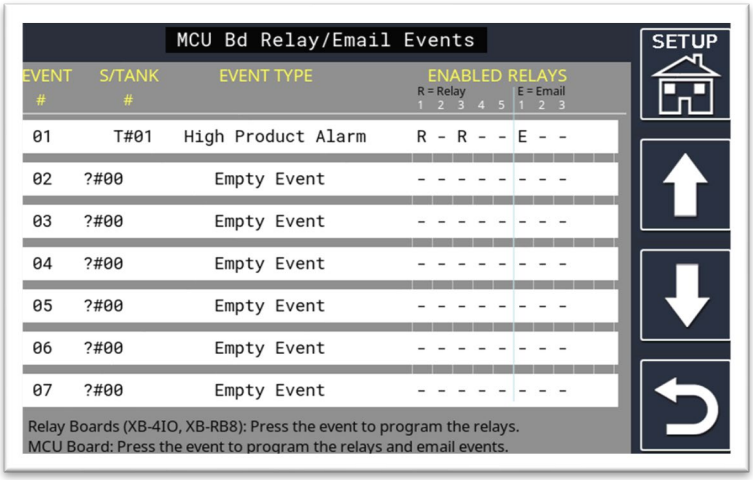


Figure 18.4

NOTE:

a) The SAVE EVENT button must be pressed to save any entered or changed parameters.

b) Programmed events can be disabled when the device is under repair to prevent the event from occurring and re-enabled when the problem is resolved. The event can also be deleted if it is no longer required.
(See Figure 18.5)

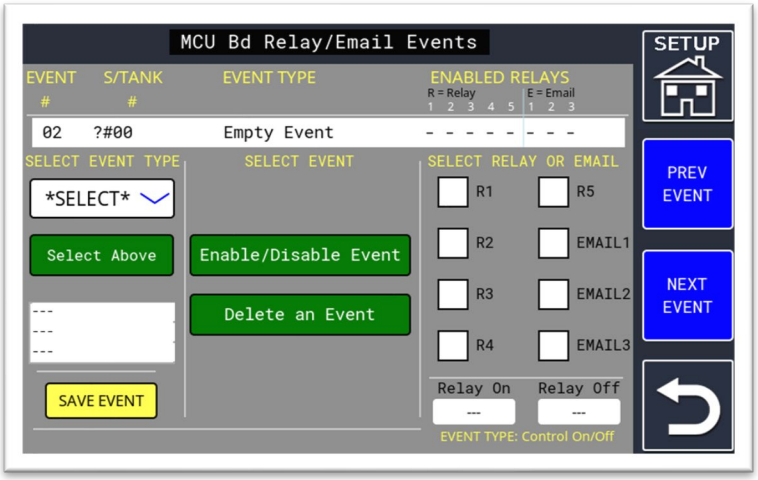


Figure 18.5

c) **Select Event Type:**
This sets the device type. Dropdown (˅) menu selections are TANK, SENSOR, or BOARD. You can toggle between devices of that type. Device information is displayed in the white box (lower left) for the selected device.
(See Figure 18.6)

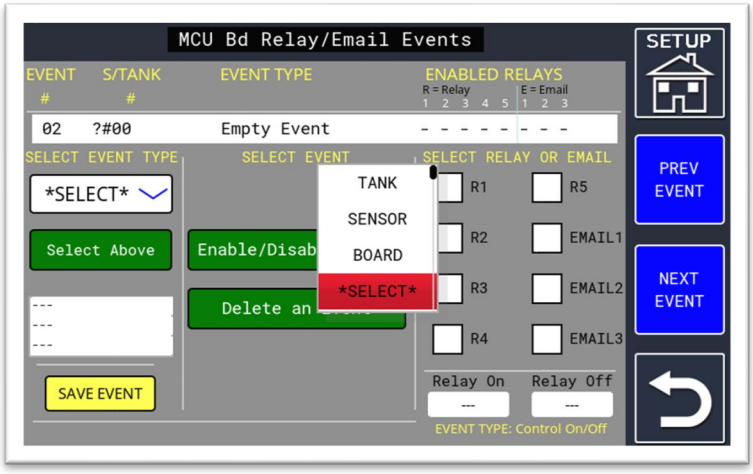


Figure 18.6

d) **Select Event:**
This selects the required alarm condition needed for the selected device. Various options are available from the Select Event dropdown (˅) menu.

- Tank Selections:
(See Figure 18.7)

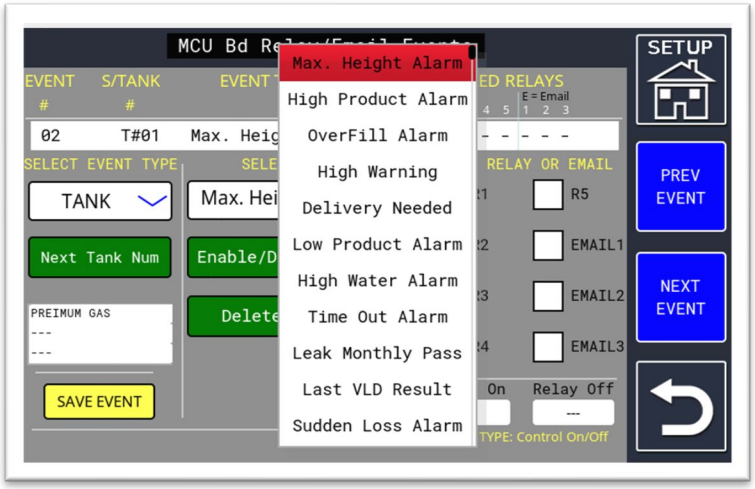


Figure 18.7

- Sensor Selections:
(See Figure 18.8)

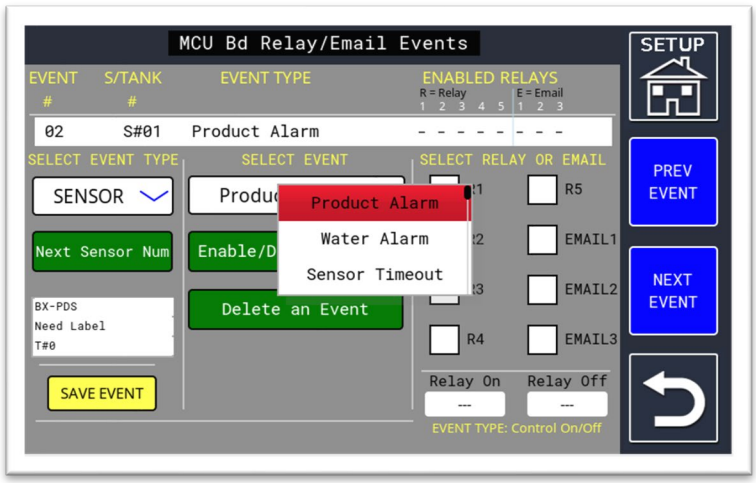


Figure 18.8

- Board Selections:
(See Figure 18.9)

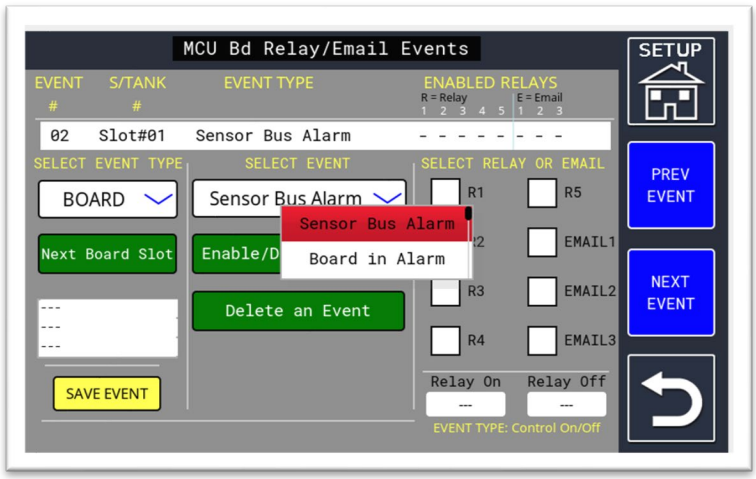


Figure 18.9

e) **Select Relay and/or Email Recipient:**
This will vary based upon the board selected. The checkboxes will determine which relays are enabled by the event, and which email recipient will receive the alarm notices (MCU board only).

f) **Relay On:** Turns on relay at the programmed set point.

g) **Relay Off:** Turns off relay at the programmed set point.

(See Figure 18.10)

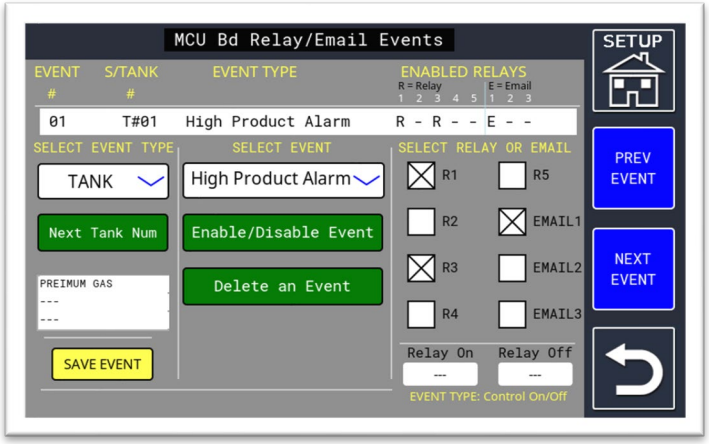


Figure 18.10

Program Relay/Input Modes (MCU): *(MCU uses Figure 18.12 on Ver. P001AW and earlier).*

The Program Relay Modes/Input Parameters screen will open for the appropriate device.

a) Use the CHANGE MODE R (#) button for the appropriate relay to toggle between LIGHT, HORN, RELAY, or DISABLED.

b) Use the CHANGE MODE I/O (#) button for the appropriate input to access the Input Selection page.

c) Features INDIVIDUAL RELAY FAILSAFE selections.

(See Figure 18.11)

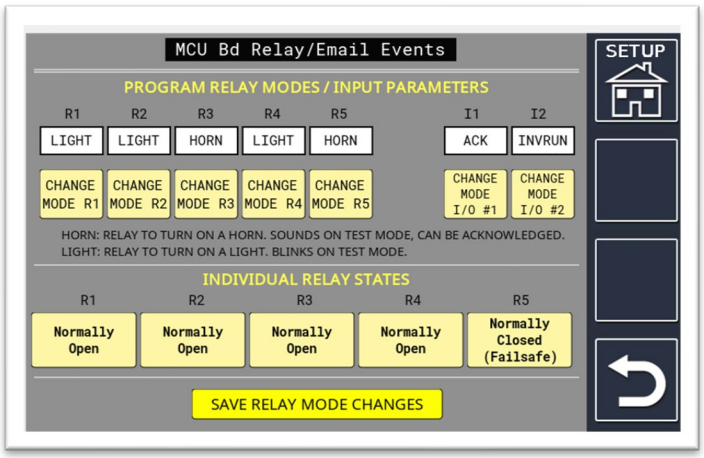


Figure 18.11

Note: Used on Ver. P001AX and after.

Program Relay/Input Modes (XB-4IO):

The Program Relay Modes/Input Parameters screen will open for the appropriate device.

a) Use the CHANGE MODE R (#) button for the appropriate relay to toggle between LIGHT, HORN, RELAY, or DISABLED.

b) Use the CHANGE MODE I/O (#) button for the appropriate input to access the Input Selection page.

(See Figure 18.12)

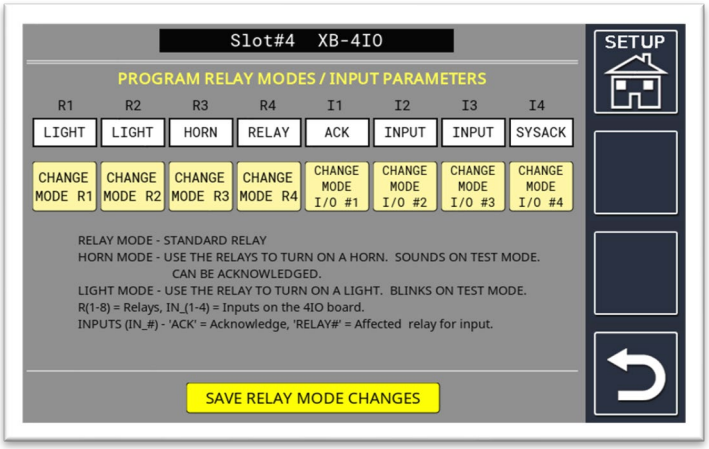


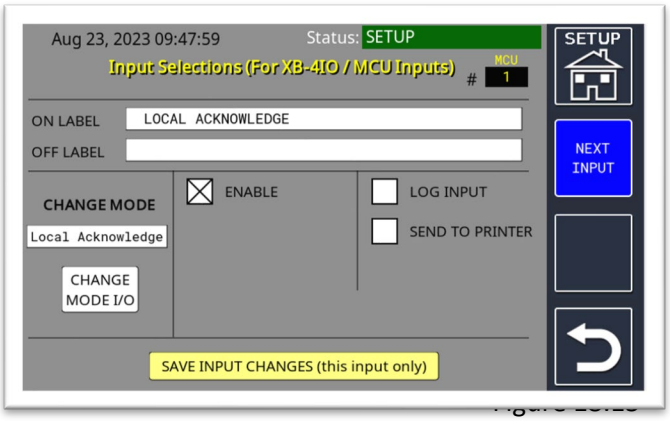
Figure 18.12

Local Acknowledge:

Note: Each selection will have specific settings that can be enabled/disabled.

- Any relay programmed for horn mode (on this board only; relates to specific slot number) will be acknowledged when the input is pulled low. This does not acknowledge the display board.
- Time/date and ON label can be logged or printed.

(See Figure 18.13)



Relay Follower:

- Turns on the relay for the corresponding input that is pressed.
- On the MCU board, input 1 controls relay 1, input 2 controls relay 2.
- On the 4-I/O board; same as MCU board plus additional 2 inputs and relays.
- Time/date and ON/OFF label can be logged or printed.
- This can be inverted so that when the input is pressed, the relay will de-energize.
- This can show alarm on the display and email/text message when the input is pressed.

(See Figure 18.14)

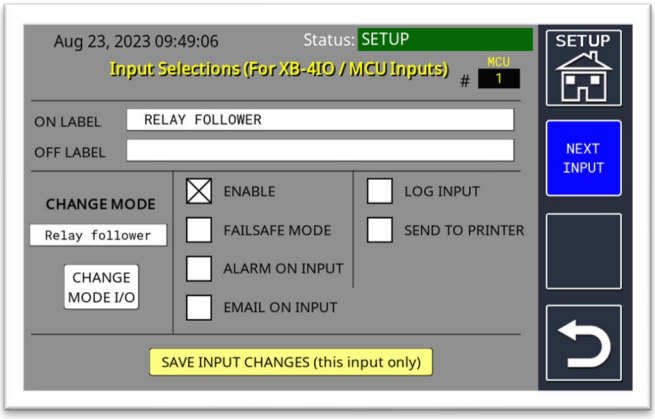


Figure 18.14

Input:

- This is used to check when an input is ON or OFF.
- Time/date and ON/OFF label can be logged or printed (alarm is not logged to system alarm log).
- This can be inverted so that when the input is released, it will then send messages/alarms.
- This can show an alarm on the display and email/text message when input is pressed.

(See Figure 18.15)

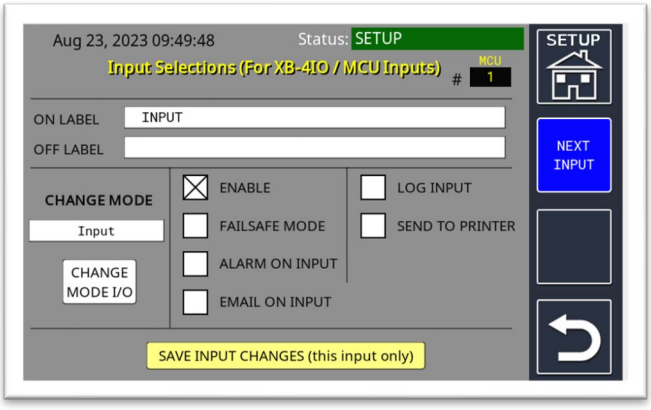


Figure 18.15

System Acknowledge:

- The horn is acknowledged system-wide on all system boards. This includes the MCU, display, and relay boards.
- Time/date and ON label can be logged or printed.
- This can show an alarm on the display and email/text message when input is pressed.

(See Figure 18.16)

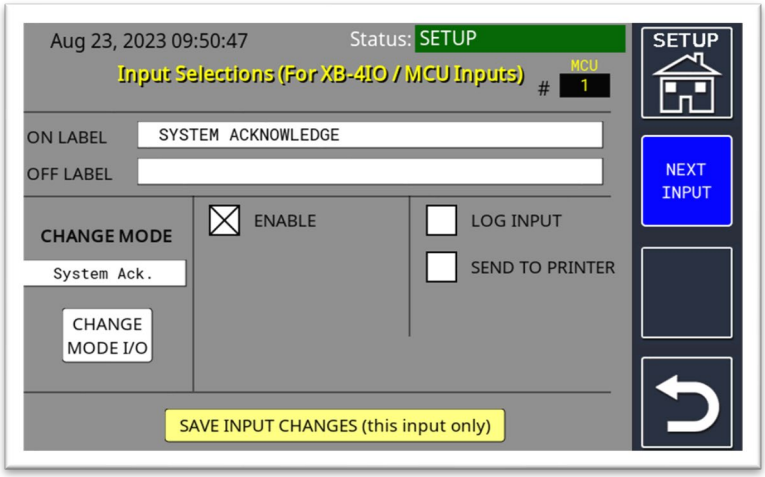


Figure 18.16

Acknowledge/Page Change/Test:

- A single input that is used for enclosure mode when accessing the touchscreen is not possible.
- Upon a current alarm, a single press will acknowledge the alarm on the panel.
- When current alarms are not present, a single press will cycle through tank pages and current alarm page.
- When the button is held for 5 seconds, a test to check relays (horn/lights) is performed.

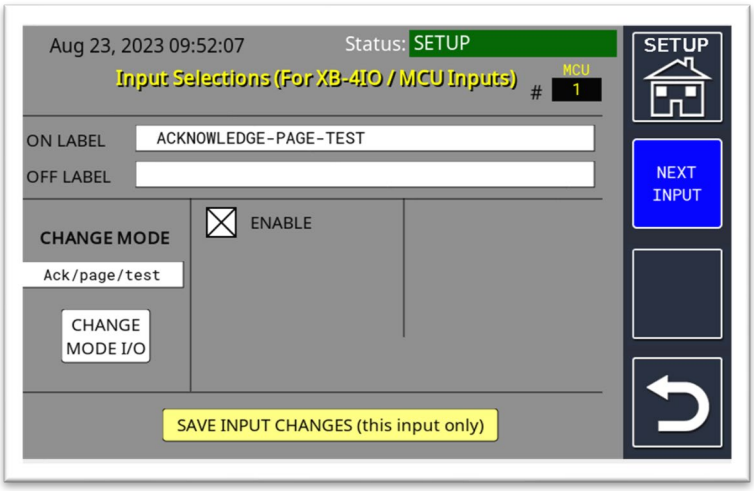
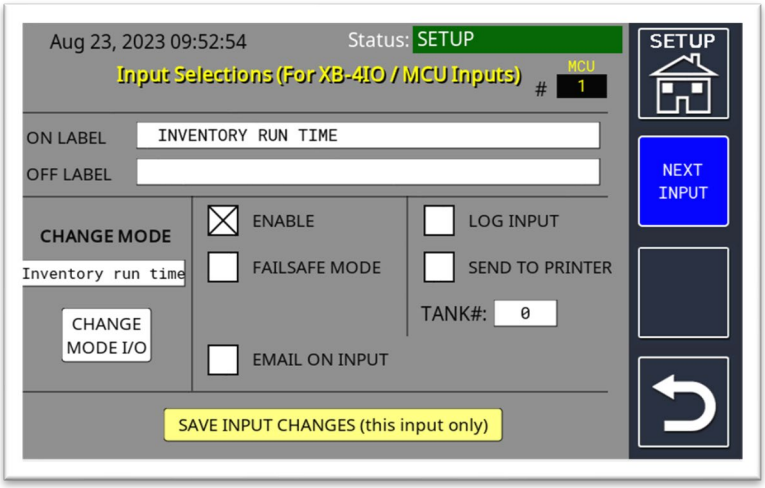


Figure 18.17

- On (some) models that have UV protective tint, push button will clear screen and turn opaque again after the time delay has expired (programmed in Miscellaneous Settings).
- Normally open push button only.
- Used on MCU inputs only.

(See Figure 18.17)

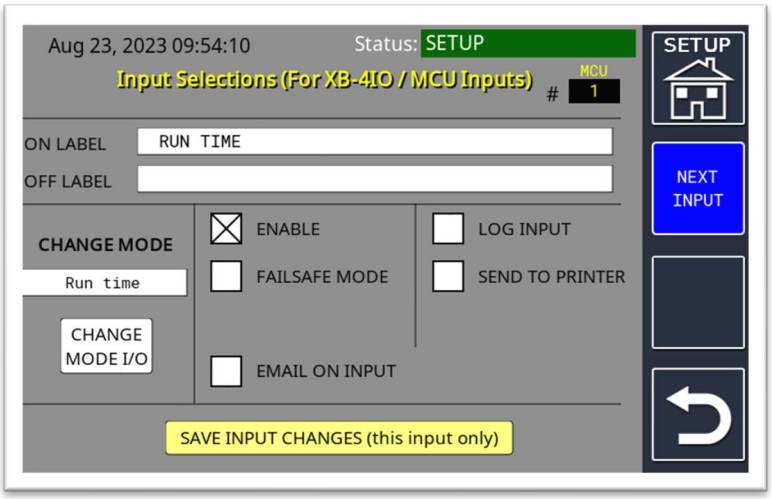
Inventory Run Time:



- Inventory data for the selected tank will be recorded when input is active and stops when deactivated.
- Time/Date and ON/OFF labels and tank inventory can be logged or printed.
- Email/text message when data is recorded.
- Input active/de-active state can be reversed.
- Inventory Run Time report mode to stop and start leak tests while the input is held down.

(See Figure 18.18)

Run Time:



- Will record when the input is active and then deactivated.
- Records time only, does not tie input to a particular tank.
- Time/Date and ON/OFF labels can be logged or printed.
- Email/text message when data is recorded.
- Input active/de-active state can be reversed.

(See Figure 18.19)

Figure 18.19

19. Clear Logs

Data Logs Page:
From this menu it is possible to individually clear each log from the unit's memory. This is useful after the site is commissioned, to clear out test data.
(See Figure 19.1)

a) **Clear Alarm Log:** Clears all alarms from log.
b) **Clear Shift Log:** Clears all shifts.
c) **Clear VLD Log:** Clears all VLD data from log.
d) **Clear Delivery Log:** Clears all previous deliveries but keeps the latest delivery saved.
e) **Clear CITLD Log:** Clears all CITLD data from log.

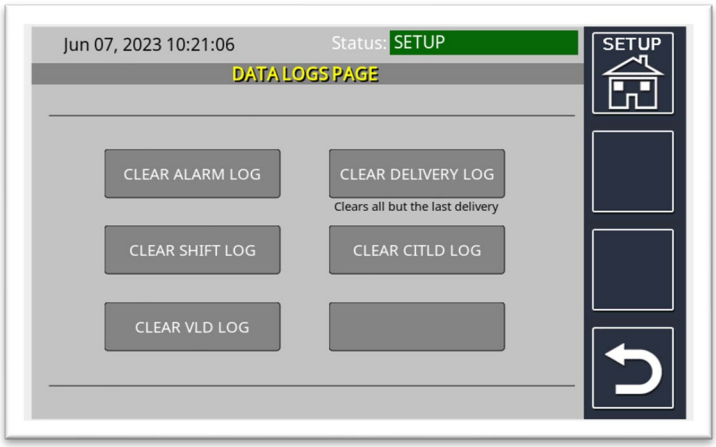


Figure 19.1

20. Backup System Parameters

System Parameter Backup:
You are prompted to confirm the backup process; press YES.
(See Figure 20.1)

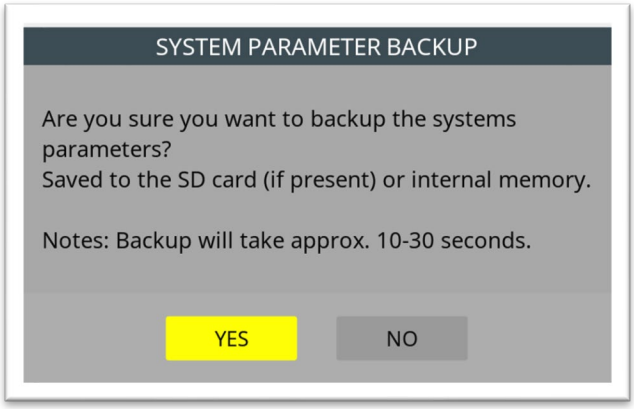


Figure 20.1

The backup process is displayed, and you are prompted to return to the Setup Menu when completed.
(See Figure 20.2)

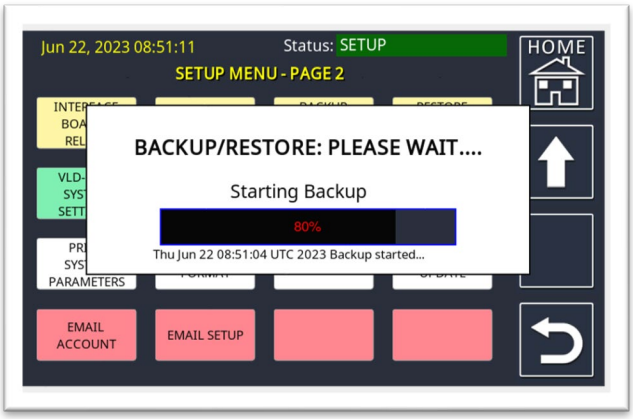


Figure 20.2

21. Restore System Parameters

System Parameter Restore:
You are prompted to confirm the restore process; press YES.
(See Figure 21.1)

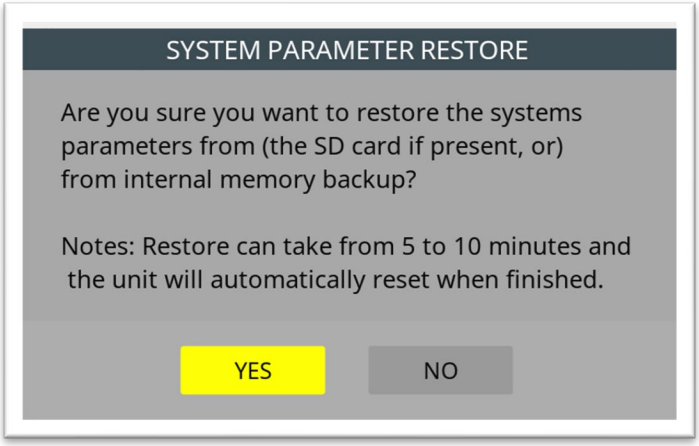


Figure 21.1

The restore process is displayed, and the system will restart when completed.
(See Figure 21.2)

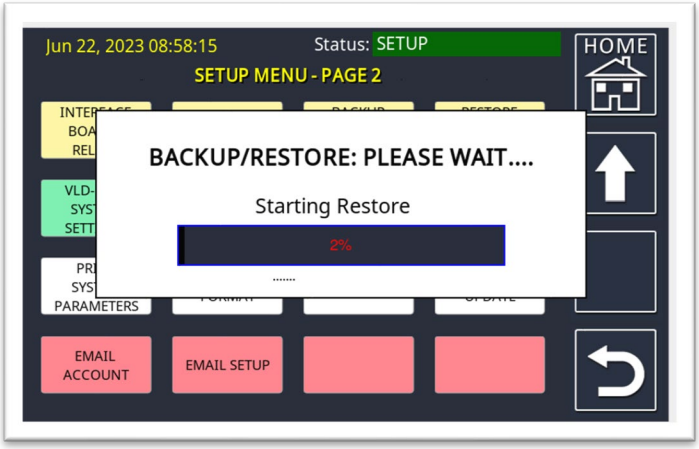


Figure 21.2

22. VLD – Leak System Settings

Tank Volumetric Leak Detection: This feature is used for setting a specific time interval for running a VLD test. It can automatically run every day, once a week, or once a month at a specific time of the day. (See Figure 22.1)

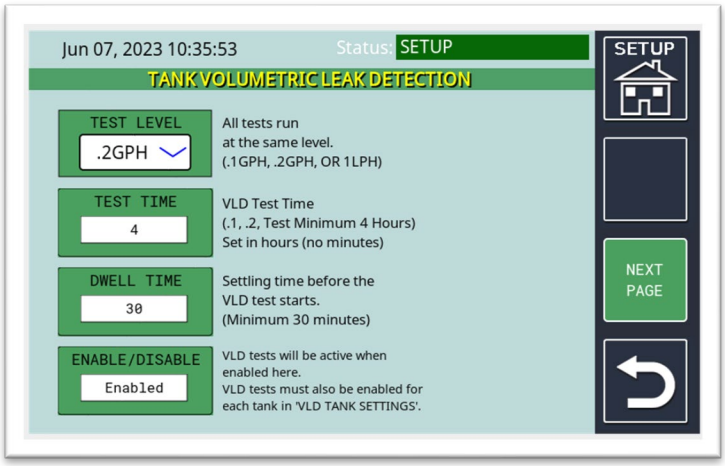


Figure 22.1

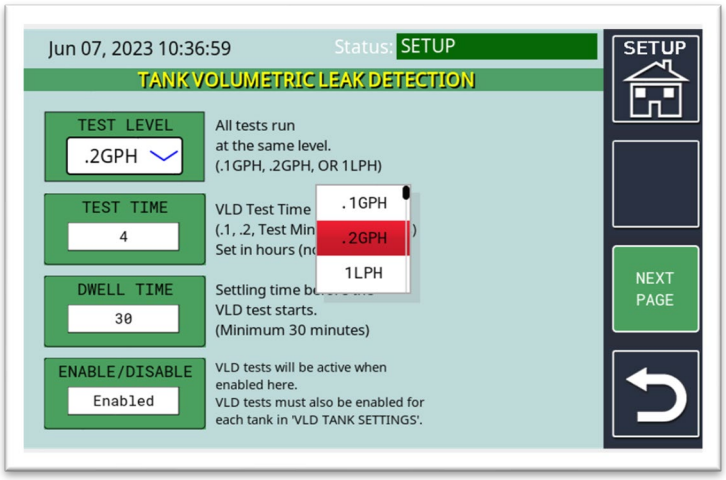


Figure 22.2

a) **Test Level:** Choose which type of VLD test you would like to run. Selectable dropdown (ᵛ) options are .1GPH, .2GPH, or 1LPH. (See Figure 22.2)
b) **Test Time:** The total time the test will run with a minimum of four hours.
c) **Dwell Time:** Product must remain constant and still for a minimum of 30 minutes before running a test (no delivery or dispensing).
d) **Enable/Disable:** Enable the VLD test feature. You must also enable VLD test for each tank.

IMPORTANT!
Remember that the VLD test time is (a minimum of) 4 hours, plus the dwell time (minimum 30 minutes), therefore the minimum time for running a VLD test is 4.5 hours. During this time, the product level must remain constant and still. If you have a delivery or dispense product before a VLD test, you must wait at least 4-8 hours (dependent on the tank size) before the start of the test.

23. VLD – Leak Tank Settings

Tank Volumetric Leak Detection: Additional VLD test settings. This page feature is used to control the desired testing frequency for each tank.
(See Figure 23.1)

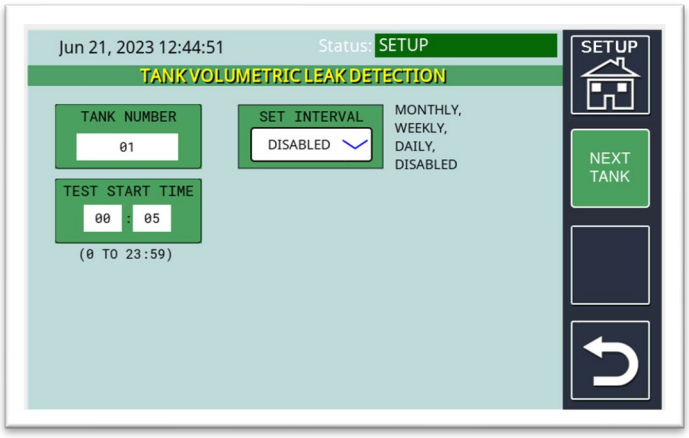


Figure 23.1

a) **Tank Number:** Assign which tanks need to run testing.
b) **Test Start Time:** The time at which the VLD test should start.
c) **Set Interval:** Selectable dropdown (˅) options are DAILY, WEEKLY, MONTHLY, or DISABLED.
(See Figure 23.2)

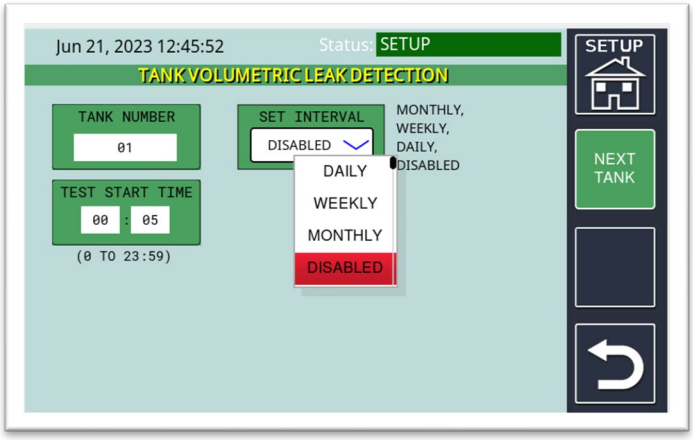


Figure 23.2

d) When the SET INTERVAL is DAILY, Set Date and Set Day are not required.
(See Figure 23.3)

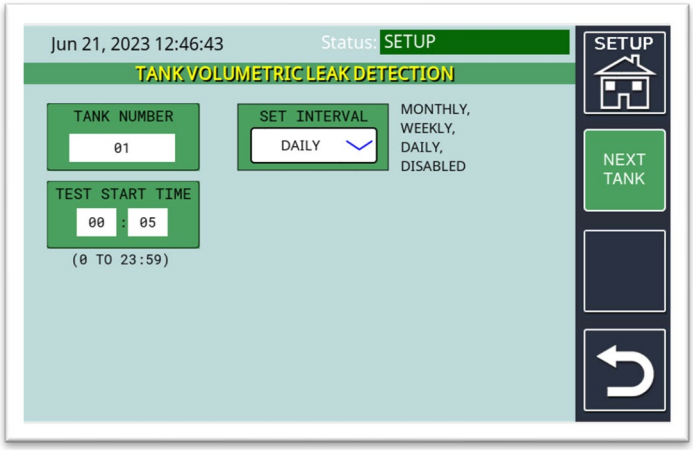


Figure 23.3

e) When the SET INTERVAL is WEEKLY, Set Day selectable dropdown (˅) options are the days of the week.
(See Figure 23.4)

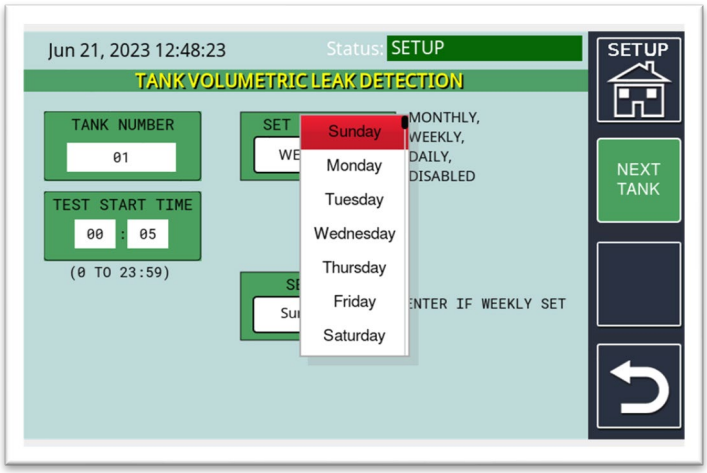


Figure 23.4

f) When the SET INTERVAL is MONTHLY, Set Date is entered with the required date.
(See Figure 23.5)

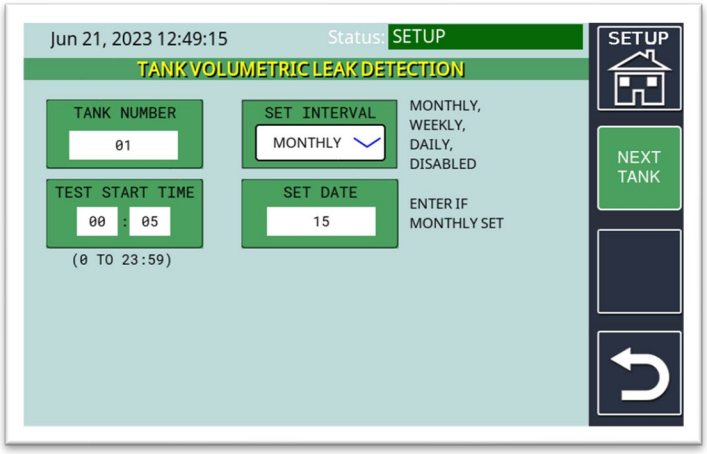


Figure 23.5

24. CITLD – Leak System Settings

Continuous In-Tank Leak Detection: This page and function allows a leak test to run in a tank that is in continuous use. Requires 20-minute time intervals to determine if the tank has a leak and will generate a monthly report.
(See Figure 24.1)

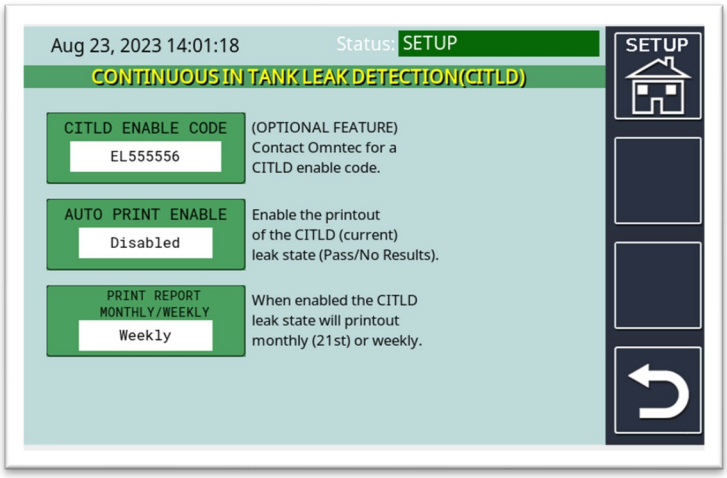


Figure 24.1

a) **CITLD Enable Code:** A CITLD enabled code is required from OMNTEC to run this optional feature.
b) **Auto Print Enable:** Enables the unit to print out the CITLD results automatically.
c) **Print Report Monthly/Weekly:** Allows the user to change between printing a monthly or weekly report for CITLD.

25. Line Leak Detection

Choose between either the EMLLD (Electro-Mechanical) or ELLD (Pressure) radio buttons at the bottom of the screen to configure the required Line Leak Detection process. (See Figure 25.1)

Note: Each line has its own settings to configure. ***Take note of the LINE# (in the upper right) when configuring.***

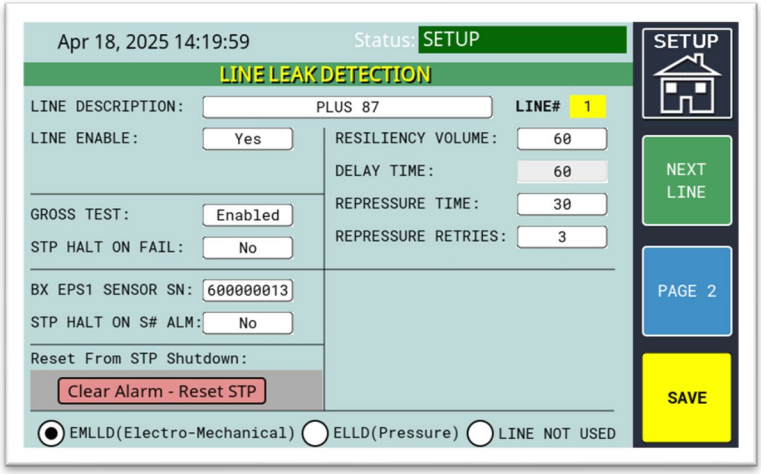


Figure 25.1

EMLLD (Electro-Mechanical):

a) **Line Description:** Name of the product, fuel, or type. *CONFIRM THE CORRECT LINE# IS BEING PROGRAMMED* (up to four lines with one HV board).

b) **Line Enable:** (YES/NO choice).
   - YES: line is enabled (allowed to dispense).
   - NO: line is disabled (not allowed to dispense).

c) **Gross Test (3 GPH):** Enabled or Disabled.

d) **STP Halt On Fail:** (YES/NO choice).
   - YES: pump is inhibited from running if a test fails.
   - NO: system will log/alarm test failure, but the line can still dispense/re-test.

e) **BX-EPS Sensor SN:** Enter the serial number of the **E**lectronic **P**iston **S**ensor for the line.

f) **STP Halt On S# Alarm:** (YES/NO choice).
   - YES: pump is inhibited from running if there is a problem with the sensor.
   - NO: system will only log/alarm sensor issue, but the line can still dispense.

g) **Resiliency Volume:** Measured in milliliters at each site for each line. This is required for proper timing of test. Refer to the ***PROTEUS X EMLLD Installation and Operation*** manual (document number 550001 from https://www.omntec.com/support/documents).

h) **Delay Time:** The amount of time (in seconds) the system waits to confirm the MLLD is fully reset before starting the repressure phase of a test. It is derived from Resiliency Volume; it cannot be configured by the user.

i) **Repressure Time:** The amount of time (in seconds) the system allows for the MLLD to reach the full flow position during the repressure phase of a test. It is typically derived from Resiliency Volume; it can be set manually in certain situations.

j) **Repressure Retries:** Enter the number of times the system should retry pressurizing the line during a test. Enter 0 (zero) if you do not want the system to retry if the first attempt to pressurize the line fails during a test.

k) **Reset From STP Shutdown:** Following an STP Halt due to a failed test, use this button to reset the system to reenable dispensing and testing.

EMLLD Page 2:
This page contains settings for lines with multiple pumps and/or a control valve. Use the drop-down menus to select the system relay that is associated with a given pump or the control valve. If a pump has been assigned a relay then it must also have a corresponding EPS sensor assigned.

The **DEFAULT** selection is only available for Pump 1. ***The Installation and Operation*** manual (document number 550001) identifies the default Pump 1 relay for each line.

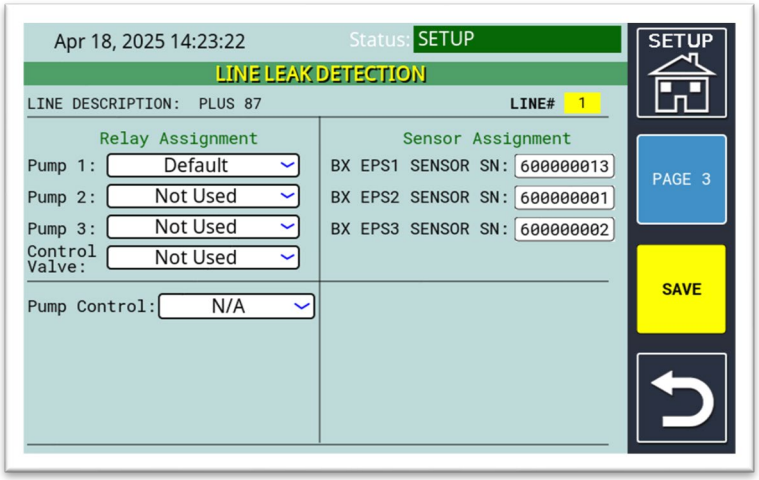


Figure 25.2

The **Pump Control** setting is only used if the line is configured with multiple pumps. The available pump control modes are **STAGED**, **STAGED-ALTERNATING**, or **ALTERNATING** (and N/A). Refer to the ***Installation and Operation*** manual for a description of each of these modes. (See Figure 25.2)

EMLLD Page 3:
LINE DISABLING setup. For each line, you can disable dispensing and testing for scheduled time periods.
(See Figure 25.3)

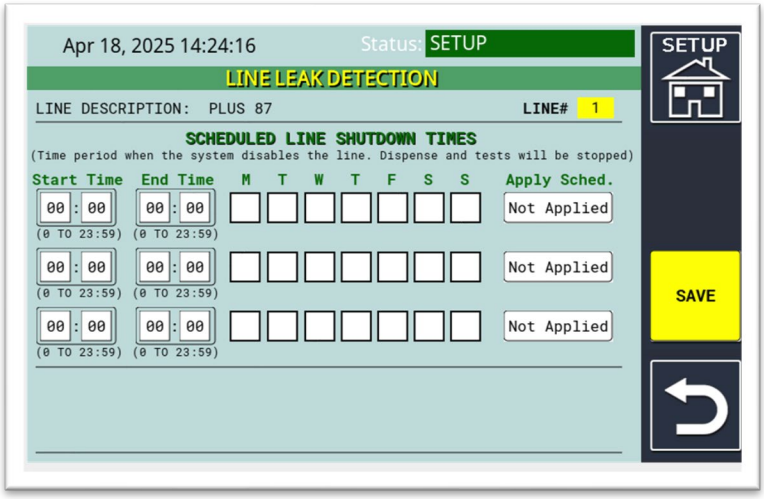


Figure 25.3

Choosing the ELLD (Pressure) radio button at the bottom-center of the Line Leak Detection (page 1) screen will configure this function.
(See Figure 25.4)

Note: ELLD has additional features vs EMLLD (see Figure 25.1). Like EMLLD, each line has its own settings to configure. Take note of the LINE# (in the upper right) when configuring.

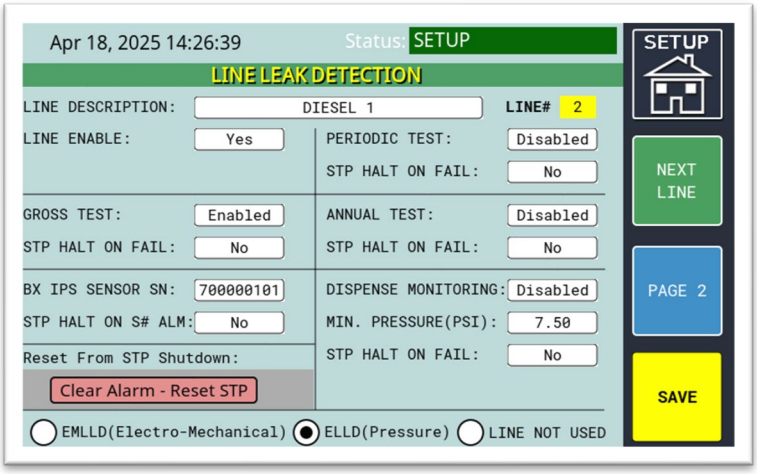


Figure 25.4

PLLD (Pressure):

a) **Line Description:** Name of the product, fuel, or type. *CONFIRM THE CORRECT LINE# IS BEING PROGRAMMED* (up to four lines with one HV board).
b) **Line Enable:** (YES/NO choice).
   - YES: line is enabled (allowed to dispense).
   - NO: line is disabled (not allowed to dispense).
c) **Gross Test (3 GPH):** Enabled or Disabled.
d) **Periodic Test (.2 GPH):** Enabled or Disabled.
e) **Annual Test (.1 GPH):** Enabled or Disabled.
f) **STP Halt On Fail Options:** (YES/NO choice).
   - YES: pump is inhibited from running if the corresponding test fails.
   - NO: system will log/alarm test failure, but the line can still dispense/re-test.
g) **BX-IPS Sensor SN:** Enter the serial number of the **I**ntelligent **P**ressure **S**ensor for the line.
h) **STP Halt On S# Alarm:** (YES/NO choice).
   - YES: pump is inhibited from running if there is a problem with the sensor.
   - NO: system will only log/alarm sensor issue, but the line can still dispense.

Reset From STP Shutdown: Following an STP Halt due to a failed test, use this button to reset the system to re-enable dispensing and testing.

ELLD Page 2:
This page contains settings for lines with multiple pumps and/or a control valve. Use the drop-down menus to select the system relay that is associated with a given pump or the control valve.
(See Figure 25.5)

The **DEFAULT** selection is only available for Pump 1. ***The Installation and Operation*** manual (document number 550001) identifies the default Pump 1 relay for each line.

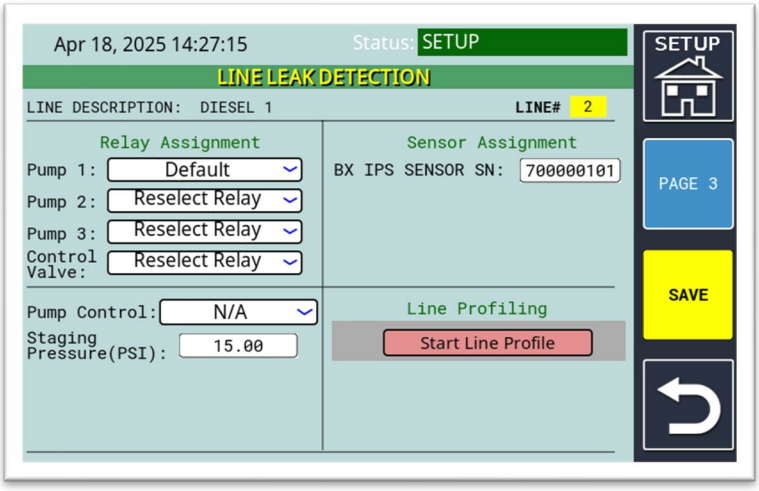


Figure 25.5

The **Pump Control** setting is only used if the line is configured with multiple pumps. The available pump control modes are **STAGED**, **STAGED-ALTERNATING**, or **ALTERNATING** (and N/A).
Refer to the ***Installation and Operation*** manual for a description of each of these modes.

Press the START LINE PROFILE button to begin Line Profiling.

LINE PROFILING:
(See Figure 25.6)

CAL SENSOR TO ZERO: You are prompted to zero calibrate the pressure sensor. Make sure the pressure on the line is zero before beginning this process.

START LINE PROFILING: You are prompted to start the line profiling.

ABORT LINE PROFILING: You are prompted to cancel the line profiling.

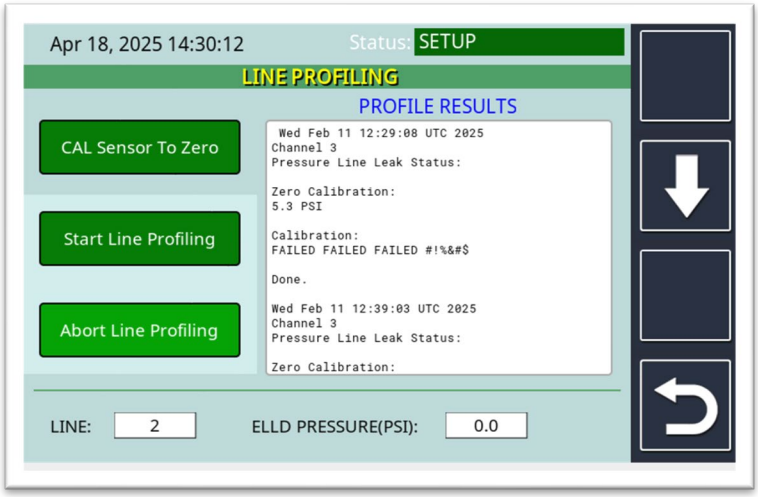


Figure 25.6

ELLD Page 3:
LINE DISABLING setup. For each line, you can disable dispensing and testing for scheduled time periods.
(See Figure 25.7)

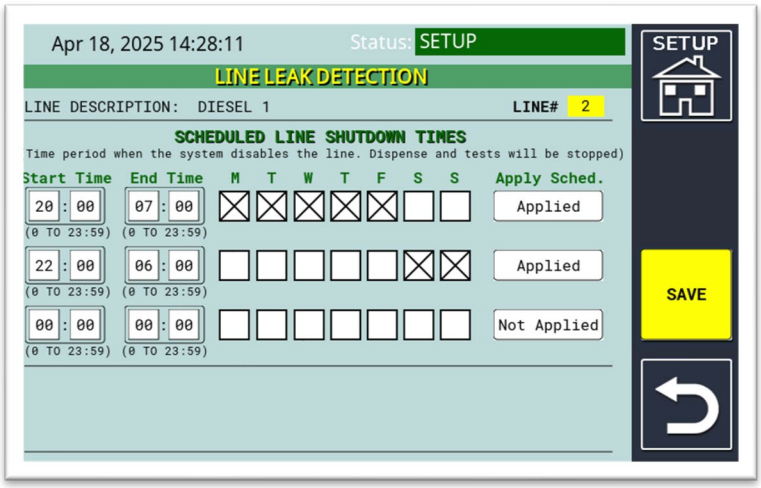


Figure 25.7

To view the status of a line, along with leak test status, go to the main screen (SYSTEM STATUS MENU) and press the (green) COMPLIANCE button.
(See Figure 25.8)

Press the LINE LEAK TEST button on the following page and a general view is displayed of the lines.

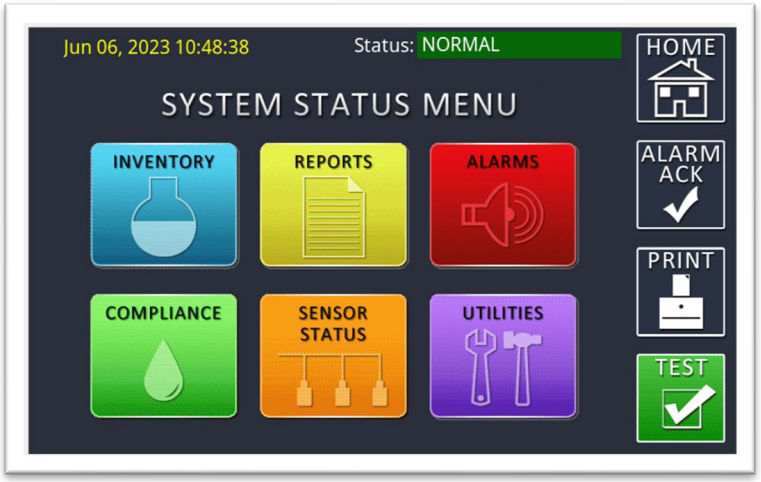


Figure 25.8

The general four-line view of each line. To see a detailed view of a line, press on that desired quadrant.
(See Figure 25.9)

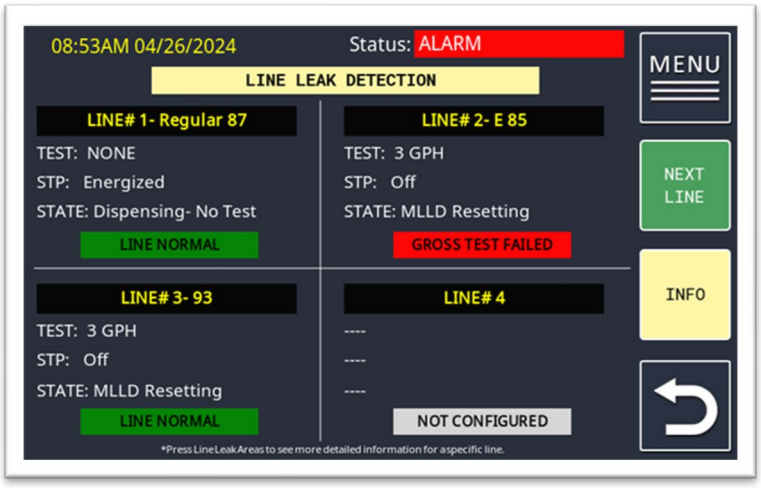


Figure 25.9

Detailed view of the line. The state of the line (LINE STATE) is visible along with TEST STATES and line setup. Sensor errors and setup errors are shown. Additionally, the state of MLLD is displayed.
(See Figure 25.10)

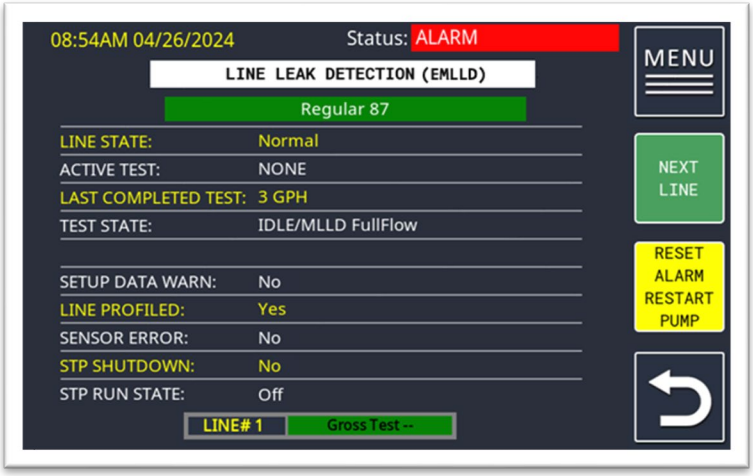


Figure 25.10

26. Print System Parameters

Print All System Parameters:
You are prompted to confirm the PRINT ALL SYSTEM PARAMETERS action; press YES.
The system's parameters are sent to the printer and will return you to the Setup Menu when finished.
(See Figure 26.1)

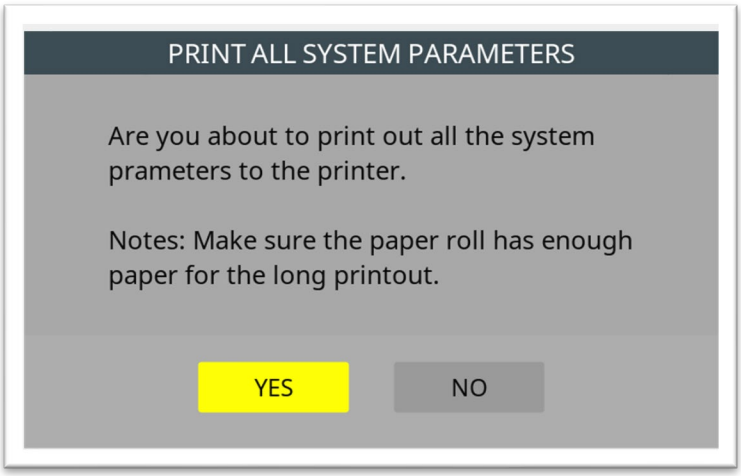


Figure 26.1

27. Time/Date Format

Time/Date Format:
Provides eight time-and-date format configuration options. Select one to display the desired time-and-date format that appears in the upper left of the display screen. The SAVE button on the right side of the screen must be pressed to save any changes made on this screen.
(See Figure 27.1)

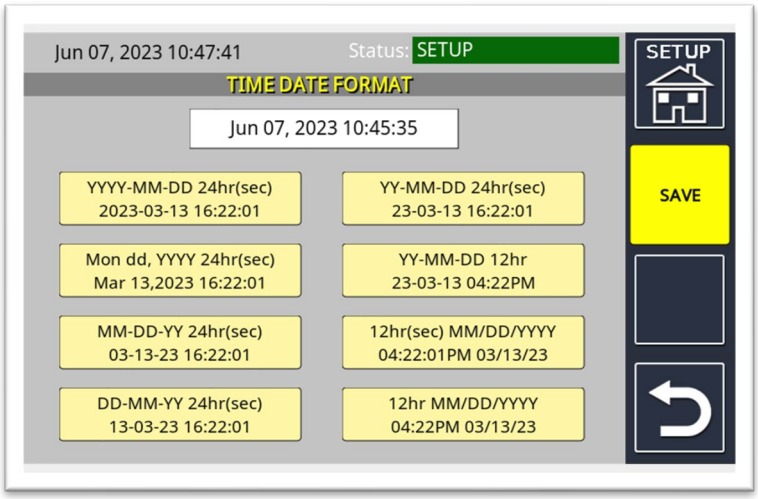


Figure 27.1

28. Software Update

Software Update:
Provides a scrollable view of firmware history and firmware update results.
(See Figure 28.1)

a) **UPDATE FROM SD CARD:** Performs a firmware update from a microSD card installed into the unit's onboard microSD card reader when Internet access to the PROTEUS controller is not available.

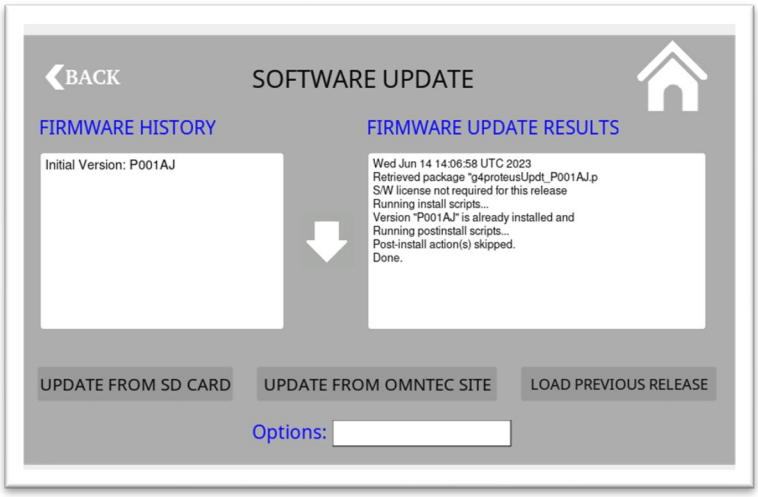


Figure 28.1

Note: The maximum size capacity of the microSD card should not exceed 32 GB.
The microSD card must first contain the firmware upgrade, accessible from ***proteusupdates.omntec.com***, prior to being at the site without Internet. *See* ***document 500183*** ***(PROCEDURE 2)*** *from www.omntec.com for more details on doing these steps.*

b) **UPDATE FROM OMNTEC SITE (recommended method):** Performs a firmware update directly from the display panel to OMNTEC's website. Internet access to the PROTEUS is required.
c) **LOAD PREVIOUS RELEASE:** Reverts to the previous firmware version stored in the system's memory.
d) **OPTIONS:** Enables additional firmware options. ***For OMNTEC use only***.

29. Email Account

Email Properties:
Setup page for enrolling in automatic email updates.
(See Figure 29.1)

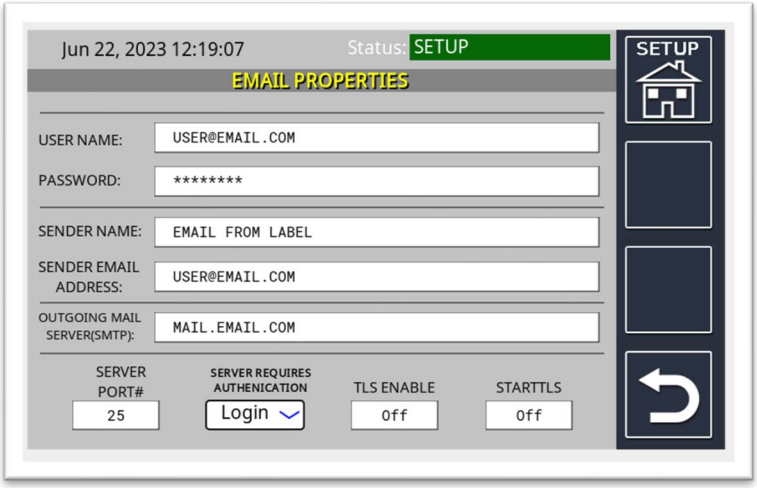


Figure 29.1

a) **User Name:** Login name used for sending email.
b) **Password:** Password for the above User Name.
c) **Sender Name:** Name of email originator.
d) **Sender Email Address:** Address of the email originator. Appears on the email together with the controller's "EL" (serial) number.
e) **Outgoing Mail Server (SMTP):** IP address of the mail server, or the mail server domain name.
f) **(Mail) Server Port #:** Default is 25 and can be changed to match the site's mail server port.
g) **Server Requires Authentication:**
Selectable dropdown (ᵛ) options are OFF, LOGIN, AUTO, or PLAIN.
(See Figure 29.2)
h) **TLS Enable:** Ensures that data transmitted between controller and the email server is encrypted and secure.
i) **StartTLS:** Used as a protocol extension for communication by email.

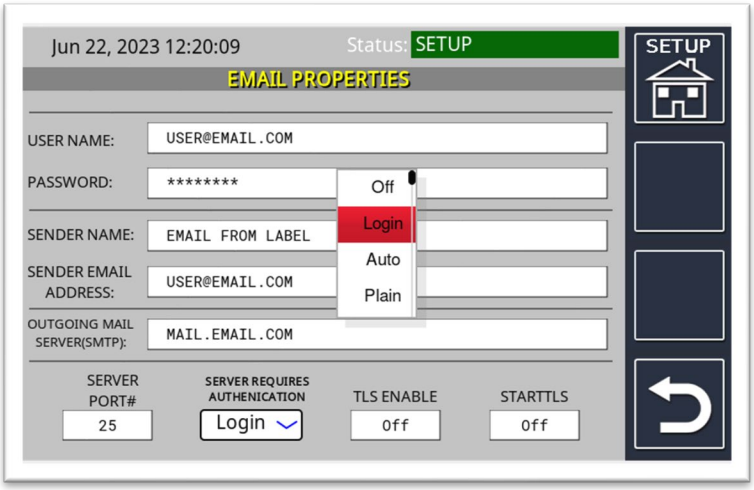


Figure 29.2

30. Email Setup

Email Properties – User Addresses And Events:
This will allow the user to send email and text message reports to inputted email addresses or mobile numbers, up to a maximum of eight address entries.
(See Figure 30.1)

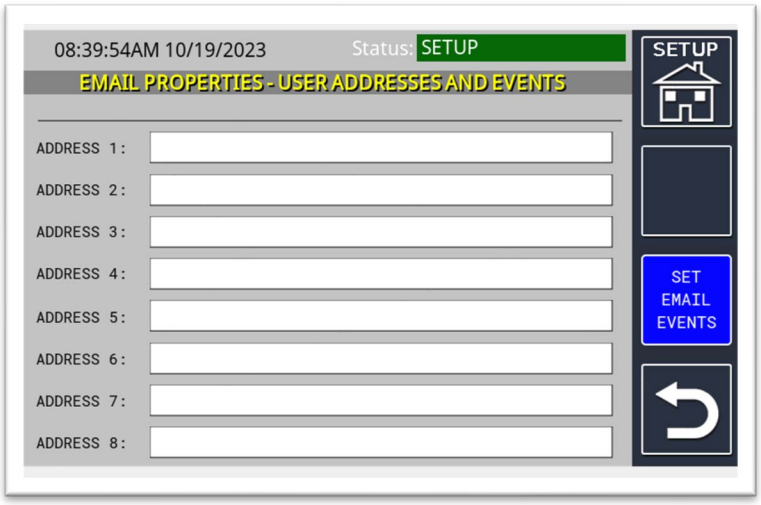


Figure 30.1

a) **Address (1 through 8):** This allows the user to input and send email and text message reports to specific email address or mobile number recipients.
(See Figure 30.1)
Note: Individual alarm events can only be sent to address fields 1, 2, or 3. All Alarms Only events can be sent to address fields 1-8.
(See numbering list 30.d and Figure 30.2)
b) **Delivery (Drop) Reports:** If enabled, a Delivery/Drop Report is sent to an assigned email or mobile number (detailed previously in numbered list 30.a).
c) **Current Status Report:** If enabled, the Current Status Report will be sent to the assigned email address or mobile number (detailed previously in numbering list 30.a) after every shift.
d) **Alarms (All Alarms Only):** If enabled, a report will be sent to the assigned email address or mobile number every time there is an alarm (addresses 1-8, detailed previously in numbering list 30.a). Another option is to choose individual "alarm events" (addresses 1-3).
e) **Input Events:** If enabled, a report is sent to the assigned email address or mobile number (detailed previously in numbering list 30.a) every time there is an input event.

Note: To set individual alarm events (address fields 1, 2, or 3 only), press SET ALARM EVENTS to the right.
(See Figure 30.2)

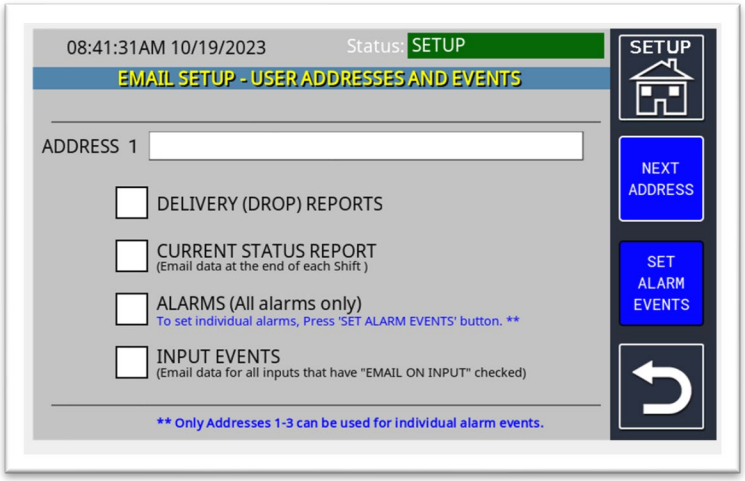


Figure 30.2